KTI NETWORKS

KFS-2621

Web Smart 24-Port 10/100 Fast Ethernet Switch with 2 Gigabit Combo Ports

User's Manual

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TRADEMARKS

Ethernet is a registered trademark of Xerox Corp.

FCC NOTICE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including the interference that may cause undesired operation.

CE NOTICE

Marking by the symbol indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards:

EMC Class A

EN55022:2006

EN61000-3-2:2006

EN61000-3-3:1995/A1:2001/A2:2005 Class A

EN 55024:1998/A1:2001/A2:2003

IEC 61000-4-2:2001

IEC 61000-4-3:2002/A1:2002

IEC 61000-4-4:2004

IEC 61000-4-5:2001

IEC 61000-4-6:2003

IEC 61000-4-8:2001

IEC 61000-4-11:2001

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1. Introduction

The KFS-2621 is a managed Fast Ethernet switch which is featured with the following switched ports and advantages in a 19" rack mountable box:

- 24 10/100Mbps Fast Ethernet copper ports
- 2 combo ports - 10/100/1000Mbps copper & 1000Base-X SFP

Model Definition

Model	Description	Management	Power Input
KFS-2621-S	AC power model	Managed	AC 100 ~ 240V
KFS-2621-D	DC power model	Managed	DC 36 ~ 72V

Plug and Play

The switch is shipped with factory default configuration which behaves like an unmanaged Fast Ethernet switch for workgroup. It provides 24 10/100Mbps copper ports for connections to Ethernet and Fast Ethernet devices. With the featured auto-negotiation function, the switch can detect and configure the connection speed and duplex automatically. The switch also provides auto MDI/MDI-X function, which can detect the connected cable and switch the transmission wire pair and receiving pair automatically. This auto-crossover function can simplify the type of network cables used.

Gigabit Ethernet Connectivity

Two Gigabit combo ports are provided in the switch. The combo port provides one 10/100/1000Mbps RJ-45 for connecting to Gigabit copper device and one 1000M SFP slot, which can be installed with optional SFP optical fiber transceivers to support one Gigabit 1000Base-X fiber connections respectively when needed.

Fiber Connectivity

The 1000M SFP slot provided in a combo port, which can be installed with optional SFP optical fiber transceivers to support one Gigabit 1000Base-X fiber connection when needed.

Management

The switch is embedded with an Http server which provides management functions for advanced network functions including Port Control, Quality of Service, and Virtual LAN functions. The management can be performed via Web browser based interface over TCP/IP network.

Quality of Service

For advanced application, the switch is featured with powerful Quality of Service (QoS) function which can classify the priority for received network frames based on the ingress port and frame contents. Furthermore, many service priority policies can be configured for egress operation in per-port basis.

Virtual LAN (VLAN)

For increasing Tagged VLAN applications, the switch is also featured with powerful VLAN function to fulfill the up-to-date VLAN requirements. The switch supports both port-based VLAN and tagged VLAN in per-port basis.

AC & DC Power Options

In addition to standard AC power input, the switches provide DC options for applications with DC power system.

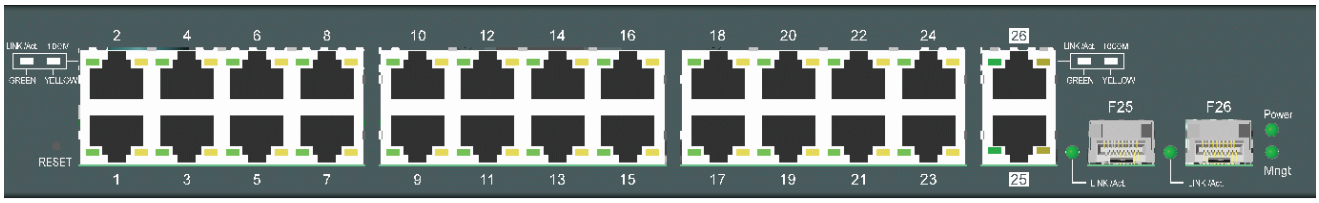
1.1 Features

- Provide 24 10/100Mbps Fast Ethernet ports & 2 Gigabit combo ports
- All copper ports support auto-negotiation and auto-MDI/MDI-X detection
- Wire speed reception and transmission
- Supports 802.3x flow control for full-duplex and backpressure for half-duplex
- Store-and-Forward switching method
- Self learning for active MAC addresses up to 4K entries
- Provide in-band web-based management interface
- Provide port status, statistic monitoring and control function
- Provide port bandwidth control function
- Provide static and LACP port link aggregation function
- Support port-based and 802.1Q Tag-based VLAN
- Provide QoS function
- Provide IGMP snooping function
- Support 802.1w RSTP and 802.1D STP
- Support DHCP for dynamic IP configuration
- No fan design
- 19” rack mountable
- Wide operating temperature range

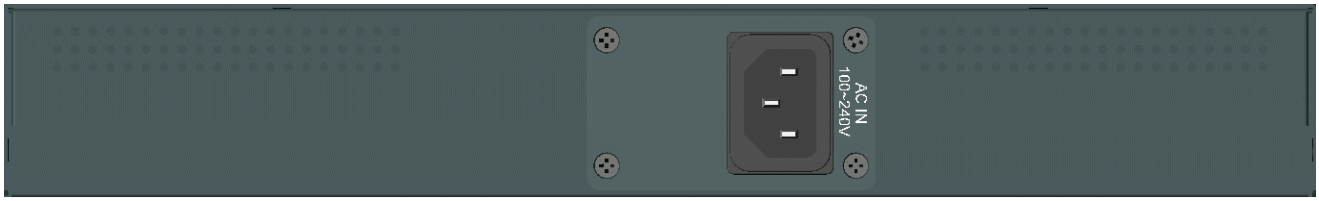
1.2 Product Panels

The following figure illustrates the front panel and rear panel of the switch:

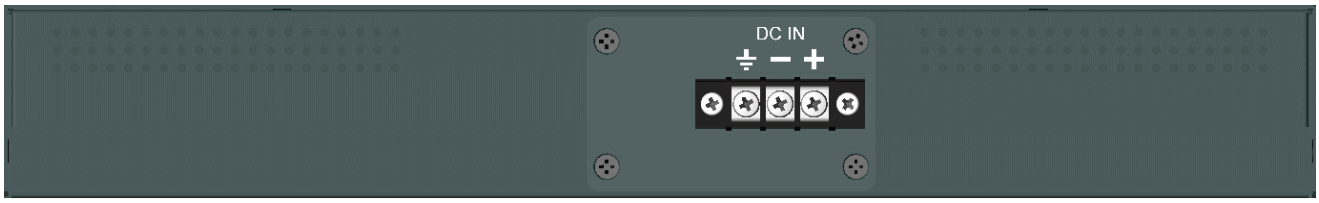
Front panel



Rear panel –AC power model



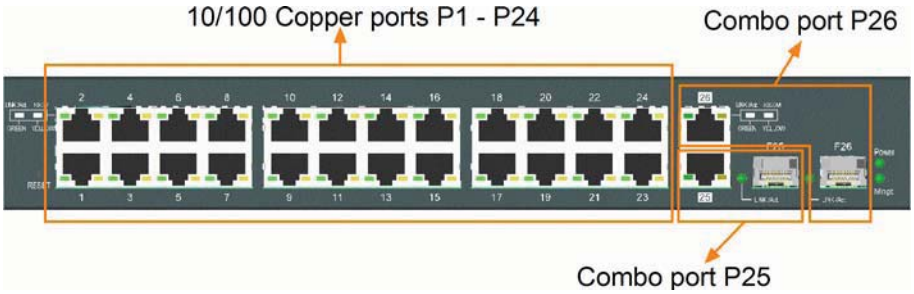
Rear panel –DC power model



1.3 LED Indicators

LED	Color	Function
Power	Green	Power status
Mngt	Green	Management status
LINK/Act. (Port 1-24)	Green	Link & activity status
100M (Port 1-24)	Yellow	Port speed 100Mbps
LINK/Act. (Port 25-26)	Green	Link & activity status
1000M (Port 25-26)	Yellow	Port speed 1000Mbps
F25 Link	Green	SFP Fiber is selected and link up on Port 25
F26 Link	Green	SFP Fiber is selected and link up on Port 26

1.4 Specifications



10/100 Copper Ports

Compliance	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX
Connectors	Shielded RJ-45 jacks
Pin assignments	Auto MDI/MDI-X detection
Configuration	Auto-negotiation or software control
Transmission rate	10Mbps, 100Mbps
Duplex support	Full/Half duplex
Network cable	Cat.5 UTP

Combo Port 25 26 with 10/100/1000 RJ-45 and 1000Mbps SFP

10/100/1000 Copper Port Interface

Compliance	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX, IEEE 802.3u 1000Base-T
Connectors	Shielded RJ-45 jacks
Pin assignments	Auto MDI/MDI-X detection
Configuration	Auto-negotiation or software control
Transmission rate	10Mbps, 100Mbps, 1000Mbps
Duplex support	Full/Half duplex
Network cable	Cat.5 UTP

Fiber interface

Compliance	IEEE 802.3z 1000Base-SX/LX (mini-GBIC)
Connectors	SFP for optional SFP type fiber transceivers
Configuration	Auto/Forced, 1000Mbps, Full duplex
Transmission rate	1000Mbps
Network cables	MMF 50/125 60/125, SMF 9/125
Eye safety	IEC 825 compliant

Switch Functions

MAC Addresses Table	4K entries
Forwarding & filtering	Non-blocking, full wire speed
Switching technology	Store and forward
Maximum packet length	1536 bytes
Flow control	IEEE 802.3x pause frame base for full duplex operation
	Back pressure for half duplex operation
VLAN function	Port-based VLAN and IEEE 802.1Q Tag-based VLAN
QoS function	Port-based, 802.1p-based, IP/DS-based
Port control	Port configuration control via software management
Storm control	Broadcast storm protection control via software management
Aggregation	Link aggregation (or called port trunking)
Port Mirroring	Mirror received frames to a sniffer port
IGMP Snooping	IGMP snooping configuration

Software Management Functions

Interfaces	Web browser
Management objects	System settings, port status/statistics, port control, VLAN, QoS,
	Link aggregation, port mirroring, Firmware upgrade
	STP/RSTP, Configuration backup and restore

AC Power Input

Interfaces	IEC320 receptacle
Operating Input Voltages	100 ~ 240VAC
Power Consumption	20W max. @110VAC

DC Power Input

Interfaces	Screw-type terminal block
Operating Input Voltages	+36 ~ +72VDC
Power Consumption	20W max. @48VDC

Mechanical

Dimension (base)	295 x 160 x 43 mm (WxDxH)
Housing	Enclosed metal
Mounting	Desktop mounting, 19” rack mounting

Environmental

Operating Temperature	Typical -20°C ~ +60°C
Storage Temperature	-30°C ~ +85°C
Relative Humidity	10% ~ 90% non-condensing

Electrical Approvals

FCC	Part 15 rule Class A
CE	EMC, CISPR22 Class A
Safety	LVD, IEC60950-1

2. Installation

2.1 Unpacking

The product package contains:

The switch unit

- One AC power cord (Models with AC power)
- One 19” rack mounting kit
- One product CD-ROM

2.2 Safety Cautions

To reduce the risk of bodily injury, electrical shock, fire and damage to the product, observe the following precautions.

- Do not service any product except as explained in your system documentation.
- Opening or removing covers may expose you to electrical shock.
- Only a trained service technician should service components inside these compartments.
- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your trained service provider:
  - The power cable, extension cable, or plug is damaged.
  - An object has fallen into the product.
  - The product has been exposed to water.
  - The product has been dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.
- Do not push any objects into the openings of your system. Doing so can cause fire or electric shock by shorting out interior components.
- Operate the product only from the type of external power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service provider or local power company.

2.3 Mounting the Switch

Desktop Mounting

The switch can be mounted on a desktop or shelf. Make sure that there is proper heat dissipation from and adequate ventilation around the device. Do not place heavy objects on the device.

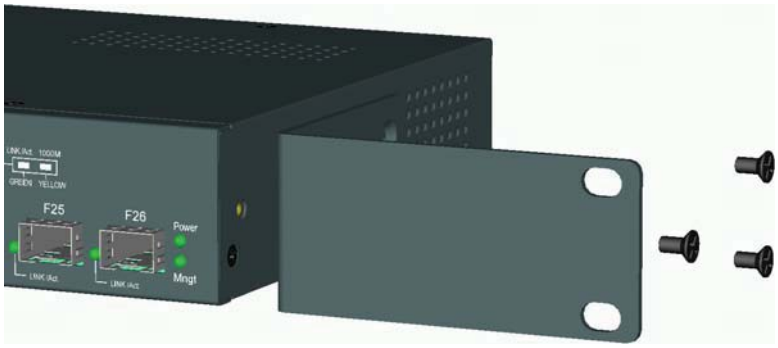
Rack Mounting

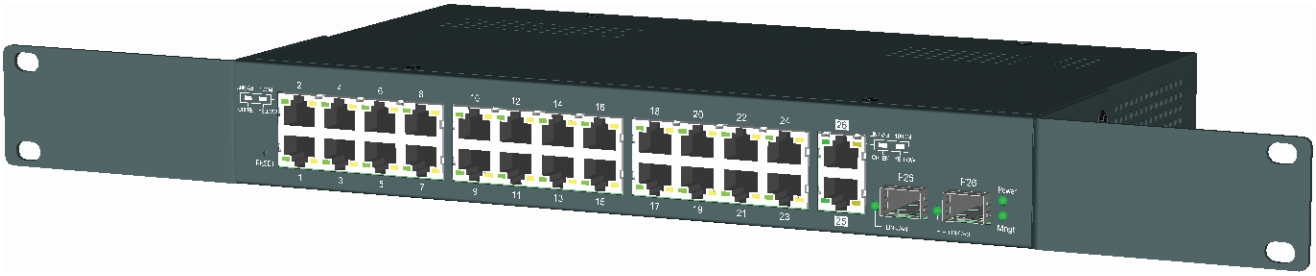
Two 19-inch rack mounting brackets are supplied with the switch for 19-inch rack mounting.

The steps to mount the switch onto a 19-inch rack are:

1. Turn the power to the switch off.

2. Install two brackets with supplied screws onto the switch as shown in above figure.



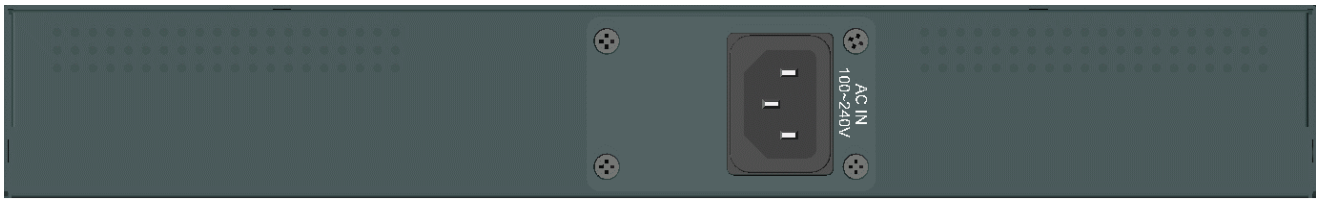


2. Mount the switch onto 19-inch rack with rack screws securely.

3. Turn the power to the switch on.

2.4 AC Power Supply

If the purchased switch is with AC power input, one AC power cord which meets the specification of your country of origin was supplied in package. Before installing AC power cord to the switch, make sure the AC power is OFF and the AC power to the power cord is turned off.



AC power input specifications

Connector: IEC320 type

Power Rating: 100 ~ 240VAC, 50/60Hz

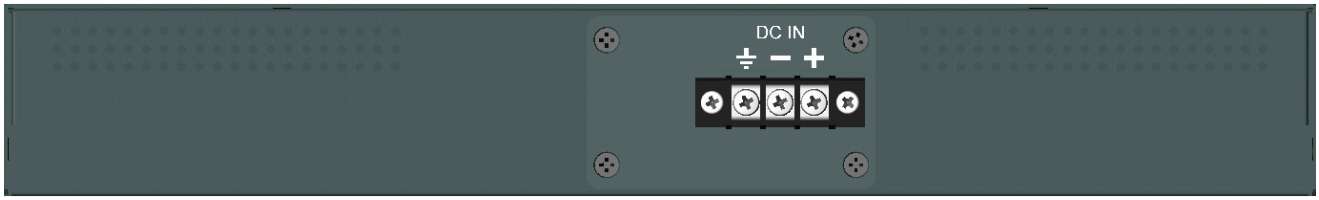
Voltage Range: 90 ~ 264VAC

Frequency: 47 ~ 63 Hz

Power Consumption: 20W max.

2.5 DC Power Supply

If the purchased switch is with DC power input, the power connector is shown below:



DC power input specifications

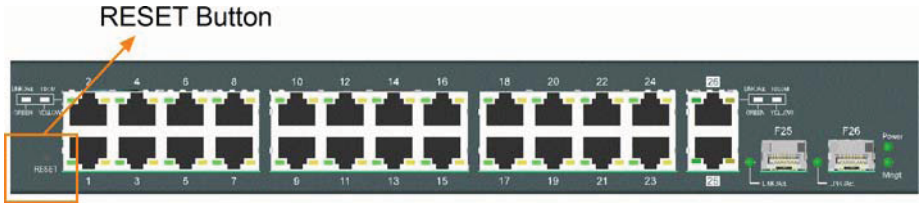
Receptacle: Screw-type terminal block

Operating Voltages: +36 ~ +72VDC

Power Consumption: 20W max.@48VDC

2.6 Reset Button

The reset button is used to perform a reset to the switch. It is not used in normal cases and can be used for diagnostic purpose. If any network hanging problem is suspected, it is useful to push the button to reset the switch without turning off the power. Check whether the network is recovered.



The button can also be used to restore the software configuration settings to factory default values. The operations are:

Operation	Function
Press the button more than 4 seconds when power up	Restore factory default settings
Press the button and release during switch operation	Reboot the switch

3. Making Connections and Configuring IP Address

3.1 Making UTP Connections

The 10/100 and 10/100/1000 RJ-45 copper ports support the following connection types and distances:

Network Cables

10BASE-T: 2-pair UTP Cat. 3, 4, 5, EIA/TIA-568B 100-ohm

100BASE-TX: 2-pair UTP Cat. 5, EIA/TIA-568B 100-ohm

1000BASE-T: 4-pair UTP Cat. 5 or higher (Cat.5e is recommended), EIA/TIA-568B 100-ohm

Link distance: Up to 100 meters

Auto MDI/MDI-X Function

This function allows the port to auto-detect the twisted-pair signals and adapts itself to form a valid MDI to MDI-X connection with the remote connected device automatically. No matter a straight through cable or crossover cable are connected, the ports can sense the receiving pair automatically and configure themselves to match the rule for MDI to MDI-X connection. It simplifies the cable installation.

Auto-negotiation Function

The ports are featured with auto-negotiation function and full capability to support connection to any Ethernet devices. The port performs a negotiation process for the speed and duplex configuration with the connected device automatically when each time a link is being established. If the connected device is also auto-negotiation capable, both devices will come out the best configuration after negotiation process. If the connected device is incapable in auto-negotiation, the switch will sense the speed and use half duplex for the connection.

Port Configuration Management

For making proper connection to an auto-negotiation INCAPABLE device, it is suggested to use port control function via software management to set forced mode and specify speed and duplex mode which match the configuration used by the connected device.

3.2 Making Fiber Connection

The SFP slot must be installed with an SFP fiber transceiver for making fiber connection. Your switch may come with some SFP transceivers pre-installed when it is shipped.

Installing SFP Fiber Transceiver

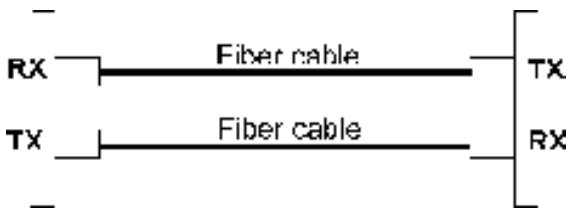
To install an SFP fiber transceiver into SFP slot, the steps are:

1. Turn off the power to the switch.
2. Insert the SFP fiber transceiver into the SFP slot. Normally, a bail is provided for every SFP transceiver. Hold the bail and make insertion.

3. Until the SFP transceiver is seated securely in the slot, place the bail in lock position.

Connecting Fiber Cables

LC connectors are commonly equipped on most SFP transceiver modules. Identify TX and RX connector before making cable connection. The following figure illustrates a connection example between two fiber ports:



Make sure the Rx-to-Tx connection rule is followed on the both ends of the fiber cable.

Network Cables

Multimode (MMF) - 50/125μm, 62.5/125 μm

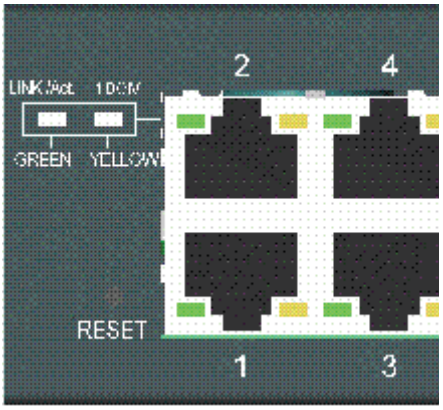
Single mode (SMF) - 9/125 μm

Fiber Port Configuration

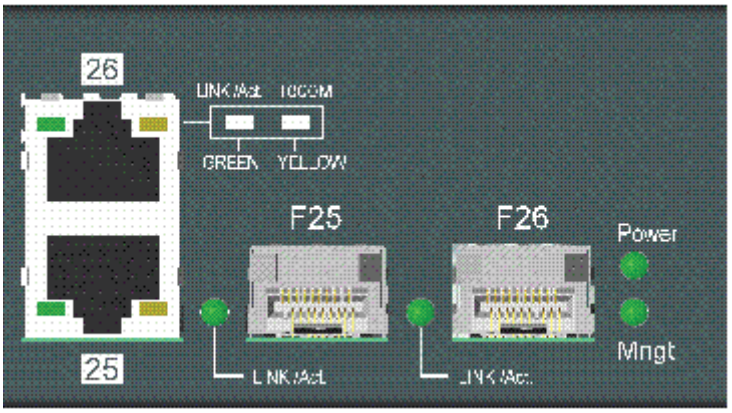
For 1000M fiber application on Port 25 and Port 26, just leave the default port configuration *Auto* for fiber connection.

3.3 LED Indication

10/100 Copper Port LEDs



Combo Ports LEDs



LED	Function	State	Interpretation
Power	Power status	ON	The power is supplied to the switch.
		OFF	The power is not supplied to the switch.
Mngt	Management status	OFF	The switch is in initialization and diagnostics.
		BLINK	The switch is initialized completely with diagnostic error.
		ON	The switch is initialized completely and normal.
P1 - P24			
LINK/Act	Port link status	ON	P1 – P24 copper port link is established. (No traffic)
(Green)		BLINK	Port link is up and there is traffic.
		OFF	Port link is down.
100M	Port speed status	ON	P1 – P24 copper port 100Mbps is selected.
(Yellow)		OFF	P1 – P24 copper port 10Mbps is selected.

P25 & P26

LINK/Act	Port link status	ON	P25 & P26 copper port link is established. (No traffic)
(Green)		BLINK	Port link is up and there is traffic.
		OFF	Port link is down.
1000M	Port speed status	ON	P25 & P26 copper port 1000Mbps is selected.
(Yellow)		OFF	P25 & P26 copper port 10 or 100Mbps is selected.
F25 LINK	Port link status	ON	P25 SFP fiber link is established.
		OFF	Port link is down.
F26 LINK	Port link status	ON	P26 SFP fiber link is established.
		OFF	Port link is down.

3.4 Configuring IP Address and Password for the Switch

The switch is shipped with the following factory default settings for software management:

Default IP address of the switch: ***192.168.0.2 / 255.255.255.0***

The IP Address is an identification of the switch in a TCP/IP network. Each switch should be designated a new and unique IP address in the network. Refer to Web management interface for System Configuration.

The switch is shipped with factory default password ***123*** for software management.

The password is used for authentication in accessing to the switch via Http web-based interface. For security reason, it is recommended to change the default settings for the switch before deploying it to your network. Refer to Web management interface for System Configuration.

4. Web Management

4.1 Abbreviation

Ingress Port: Ingress port is the input port on which a packet is received.

Egress Port: Egress port is the output port from which a packet is sent out.

IEEE 802.1Q Packets: A packet which is embedded with a VLAN Tag field

VID: VLAN identifier, 12-bit field identifies the VLAN to which the frame belongs to.

Untagged packet: A standard Ethernet frame with no VLAN Tag field

Priority-tagged packet: An IEEE 802.1Q packet which VID filed value is zero (VID=0)

VLAN-Tagged packet: An IEEE 802.1Q packet which VID filed value is not zero (VID<>0)

DSCP: Differentiated Service Code Point, 6-bit value field in an IP packet

VLAN Table lookup: The process of searching VLAN table to find a VLAN which matches the given VID index

MAC address table lookup: The process of searching MAC address table to find a MAC entry which matches the given destination MAC address and the port where the MAC address is located

Packet forwarding: also known as packet switching in a network switch based on MAC address table and VLAN table information

VLAN forwarding: the operation that a packet is forwarded to an egress destination port based on VLAN table information

VLAN group: configuration information about a VLAN which can be recognized in the switch. The information includes a VID associated to the VLAN, member ports, and some special settings.

4.2 Web Interface

The switch features an http server which can serve the management requests coming from any web browser software over TCP/IP network.

Web Browser

Compatible web browser software with JAVA script support

Microsoft Internet Explorer 4.0 or later

Set IP Address for the System Unit

Before the switch can be managed from web browser software, make sure a unique IP address is configured for the switch.

4.3 Start Browser Software and Making Connection

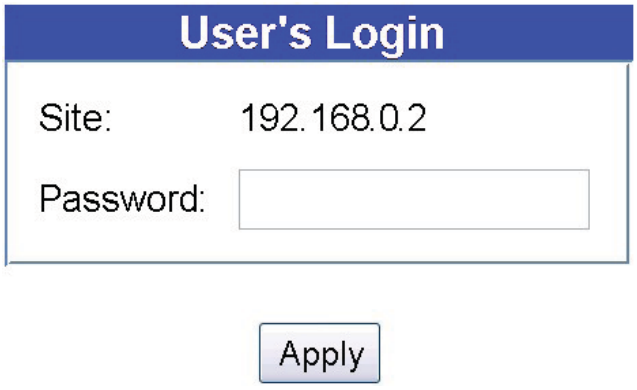
Start your browser software and enter the IP address of the switch unit to which you want to connect. The IP address is used as URL for the browser software to search the device.

URL: http://xxx.xxx.xxx.xxx/

Factory default IP address: *192.168.0.2*

4.4 Login to the Switch Unit

When browser software connects to the switch unit successfully, a Login screen is provided for you to login to the device as the display below:

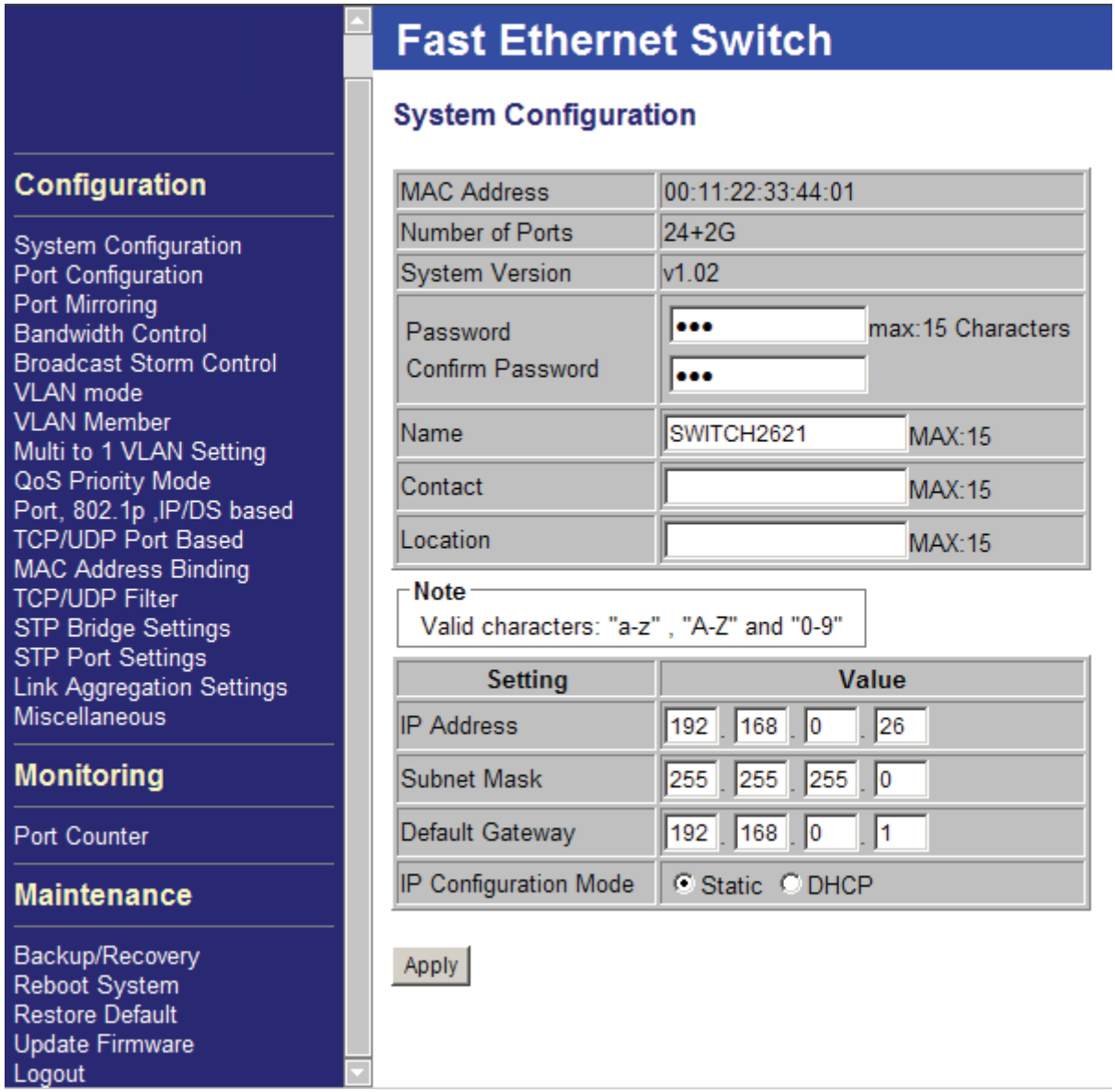


The switch accepts one successful management connection only at the same time. The other connection attempts will be prompted with a warning message as the right display above.

A new connection will be accepted when the current user logout successfully or auto logout by the switch due to no access for a time out of 5 minutes.

System Configuration is displayed after a successful login.

4.5 Main Management Menu



Configuration

System Configuration	Switch information, system and IP related settings
Port Configuration	Port link status, port operation mode configuration
Port Mirroring	Port mirroring related configuration
Bandwidth Control	Port Tx rate Rx rate control
Broadcast Storm Control	Broadcast Packet Storm protection control configuration
VLAN Mode	VLAN related configuration
VLAN Member	VLAN group member settings
Multi to 1 VLAN Setting	Special “Multi to 1” VLAN application setting
QoS Priority Mode	Quality of Service priority configuration
Port, 802.1p, IP/DS based	QoS port-based, 802.1p-based, IP/DS-based settings
TCP/UDP Port Based	TCP/UDP port number based QoS control
MAC Address Binding	Static MAC address configuration associated to each port
TCP/UDP Filter	TCP/UDP protocol-based filtering
STP Bridge Settings	STP/RSTP bridge configuration
STP Port Settings	STP/RSTP per port configuration
Link Aggregation	Port link aggregation (port trunk) related configuration
Miscellaneous	Configurations of Packet aging time, IGMP snooping, VLAN striding, VLAN uplink ports

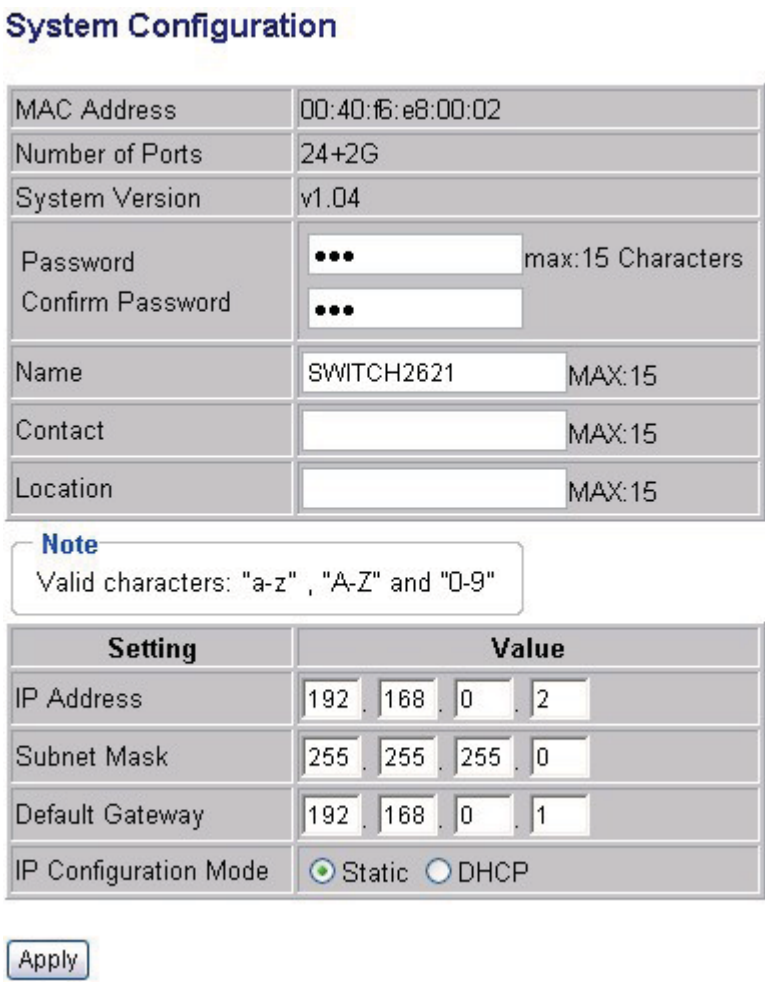
Monitoring

Port Counter	List statistics for all ports

Maintenance

Backup/Recovery	Backup switch’s current configuration
	Upload a saved configuration file to the switch
Reboot System	Command to reboot the switch
Restore Default	Command to restore the switch with factory default settings
Update Firmware	Command to update the switch firmware
Logout	Command to logout from the switch management

4.6 System Configuration



Configuration	Description
MAC Address	The MAC address factory configured for the switch It can not be changed in any cases.
Number of Ports	The number of LAN ports equipped in the switch
System Version	Vx.xx
Password	Set new password
Confirm Password	Re-enter the new password
Name *[1]	Set the system name for this switch unit
Contact	Contact person in case of any problem with this switch unit
Location	Location where this switch unit is located
IP Address	Configured IP address for the switch management
Subnet Mask	Configured subnet mask for IP address for the switch management
Default Gateway	Configured gateway IP address for the switch management
IP Configuration Mode	Static – Use the above configured IP settings DHCP *[2] - Use DHCP to get dynamic IP address configuration for the switch
[Apply]	Click to apply the configuration change

Note:

1. *It is suggested to give each switch unit a system name as an alternative unique identification beside IP address.*
2. *Setting change of DHCP mode takes effective in next boot-up.*

4.7 Port Configuration

Port Configuration

Setting	Auto-Negotiation	Speed	Duplex	Pause	Backpressure	Addr. Learning
	----	----	----	----	----	----
Select Port No.	01 ☐ 02 ☐ 03 ☐ 04 ☐ 05 ☐ 06 ☐ 07 ☐ 08 ☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 ☐ 21 ☐ 22 ☐ 23 ☐ 24 ☐ 25 ☐ 26 ☐					

Apply Refresh

Port	Current Status		Setting					
	Link	FlowCtrl	Auto-Nego	Speed	Duplex	Pause	Backpressure	Addr. Learning
1	Down	---	AUTO	100M	FULL	ON	ON	ON
2	Down	---	AUTO	100M	FULL	ON	ON	ON
3	Down	---	AUTO	100M	FULL	ON	ON	ON
4	Down	---	AUTO	100M	FULL	ON	ON	ON
5	Down	---	AUTO	100M	FULL	ON	ON	ON
6	Down	---	AUTO	100M	FULL	ON	ON	ON
7	Down	---	AUTO	100M	FULL	ON	ON	ON
8	Down	---	AUTO	100M	FULL	ON	ON	ON
9	Down	---	AUTO	100M	FULL	ON	ON	ON
10	Down	---	AUTO	100M	FULL	ON	ON	ON
11	100FDX	ON	AUTO	100M	FULL	ON	ON	ON
12	Down	---	AUTO	100M	FULL	ON	ON	ON
13	Down	---	AUTO	100M	FULL	ON	ON	ON
14	Down	---	AUTO	100M	FULL	ON	ON	ON
15	Down	---	AUTO	100M	FULL	ON	ON	ON
16	Down	---	AUTO	100M	FULL	ON	ON	ON
17	Down	---	AUTO	100M	FULL	ON	ON	ON
18	Down	---	AUTO	100M	FULL	ON	ON	ON
19	Down	---	AUTO	100M	FULL	ON	ON	ON
20	100FDX	OFF	AUTO	100M	FULL	ON	ON	ON
21	Down	---	AUTO	100M	FULL	ON	ON	ON
22	Down	---	AUTO	100M	FULL	ON	ON	ON
23	100FDX	OFF	AUTO	100M	FULL	ON	ON	ON
24	Down	---	AUTO	100M	FULL	ON	ON	ON
25	Down	---	AUTO	1000M	FULL	ON	ON	ON
26	Down	---	AUTO	1000M	FULL	ON	ON	ON

Configuration	Function
Auto-Negotiation	*Enable* – enable auto-negotiation
	Disable – disable auto-negotiation
Speed	*100M* – Fast Ethernet 100Mbps
	10M – Ethernet 10Mbps
	1000M – Gigabit Ethernet 1000Mbps
Duplex	*Full* – Full duplex
	Half – Half duplex
Pause	*Enable* – enable 802.3x pause flow control
	Disable – disable 802.3x pause flow control
Backpressure	*Enable* – enable Backpressure flow control
	Disable – disable Backpressure flow control
Addr. Learning	*Enable* – enable port auto address learning
	Disable – disable port auto address learning
Select Port No.	*v* - Select the port numbers to use the above port configuration settings.
[Apply]	Click to apply the configuration change

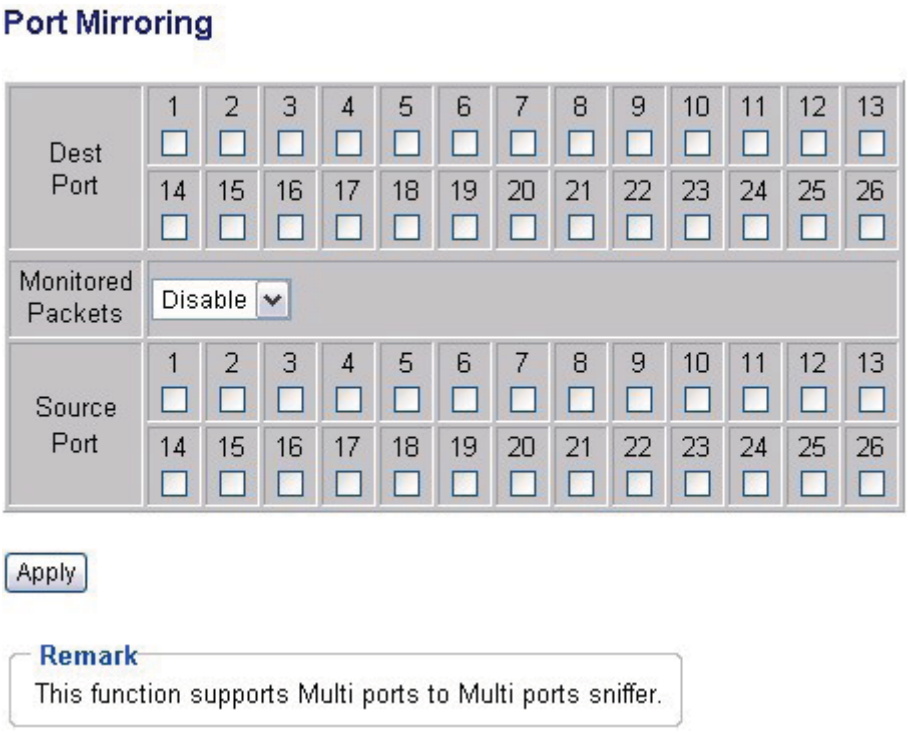
Current Status	Function
Link	*Down* – port link down
	100FDX – 100M Full duplex
	100HDX – 100M Half duplex
	10FDX – 10M Full duplex
	10HDX – 10M Half duplex
	1000FDX – 1000M Full duplex
	1000HDX – 1000M Half duplex
FlowCtrl	*ON* – Flow control enabled
	OFF – Flow control disabled

Note:

1. 802.3x pause flow control is used for full duplex mode.

2. Backpressure flow control is used for half duplex mode.

4.8 Port Mirroring


Port Mirroring
Dest Port
1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26
Monitored Packets
Disable
Source Port
1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26
Apply
Remark
This function supports Multi ports to Multi ports sniffer.

Configuration	Description
Dest Port	The selected destination ports are forwarded all packets received on the source ports.
Monitored Packets	The type of packets mirrored *Disable* – disable port mirroring function *Rx* – received packets on the source ports are mirrored *Tx* – transmitted packets on the source ports are mirrored *Rx & Tx* – all packets on the source ports are mirrored
Source Port	Select the ports which will be mirrored all received packets to the destination ports.
[Apply]	Click to apply the configuration change

Note:

1. *This port mirroring function supports multi ports to multi ports mirroring.*

4.9 Bandwidth Control

Bandwidth Control

Port No	Tx Rate	Rx Rate
01	(0 ~ 255) (0 : Full Speed)	(0 ~ 255) (0 : Full Speed)
Speed Base	Low Low : Port1-26 Bandwidth = Rate value x 32Kbps High : Port1-24 Bandwidth = Rate value x 256Kbps (Link speed 10M - Rate value 1-39) Port25-26 Bandwidth = Rate value x 2048Kbps (Link speed 10M - Rate value 1-4, 100M - Rate value 1-48)	

Apply Refresh LoadDefault

Remark

If the port link speed is lower than the set bandwidth, the rate value for the speed is used.
If the rate is shown in red text, it means the link speed is lower than the set bandwitdh.

Port	Tx Rate	Rx Rate	Link Speed	Port	Tx Rate	Rx Rate	Link Speed
1	Full Speed	Full Speed	Down	14	Full Speed	Full Speed	Down
2	Full Speed	Full Speed	Down	15	Full Speed	Full Speed	Down
3	Full Speed	Full Speed	Down	16	Full Speed	Full Speed	Down
4	Full Speed	Full Speed	Down	17	Full Speed	Full Speed	Down
5	Full Speed	Full Speed	Down	18	Full Speed	Full Speed	Down
6	Full Speed	Full Speed	Down	19	Full Speed	Full Speed	Down
7	Full Speed	Full Speed	Down	20	Full Speed	Full Speed	100M
8	Full Speed	Full Speed	Down	21	Full Speed	Full Speed	Down
9	Full Speed	Full Speed	Down	22	Full Speed	Full Speed	Down
10	Full Speed	Full Speed	Down	23	Full Speed	Full Speed	100M
11	Full Speed	Full Speed	100M	24	Full Speed	Full Speed	Down
12	Full Speed	Full Speed	Down	25	Full Speed	Full Speed	Down
13	Full Speed	Full Speed	Down	26	Full Speed	Full Speed	Down

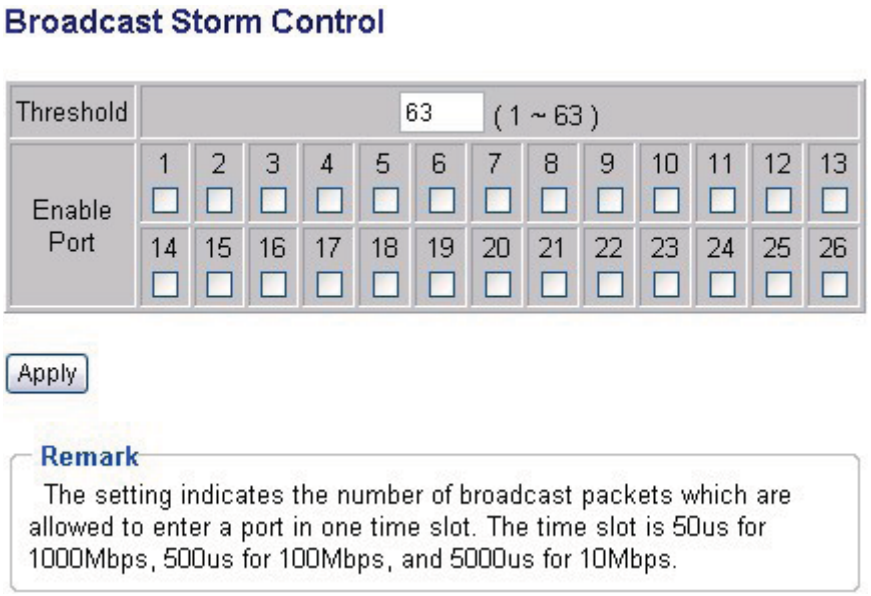
Configuration	Description
Port No.	The selected destination ports are forwarded all packets received on the source ports.
Tx Rate	Rate value: 0 ~ 255
Rx Rate	Rate value: 0 ~ 255
Speed Base	*Low* – Low rate base Port 1 ~ Port 26: Port Rate (Bandwidth) = Rate value * 32Kbps *High* – High rate base Port 1 ~ Port 24: Port Rate (Bandwidth) = Rate value * 256Kbps Port 25 ~ Port 26: Port Rate (Bandwidth) = Rate value * 2048Kbps
[Apply]	Click to apply the configuration change.
[Refresh]	Click to refresh the port rate display.
[LoadDefault]	Click to use the default configuration for all ports.

Status	Description
Link Speed	The port link speed: 10Mbps, 100Mbps, 1000Mbps

Note:

1. *Rate value = 0 means full speed for Tx & Rx.*
2. *Port 1 ~ Port 24 Link speed 10M with high rate base: Valid rate value 1~39*
3. *Port 25 ~ Port 26 Link speed 10M with high rate base: Valid rate value 1~4*
4. *Port 25 ~ Port 26 Link speed 100M with high rate base: Valid rate value 1~48*

4.10 Broadcast Storm Control


Broadcast Storm Control
Threshold
63
(1 ~ 63)
Enable Port
1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26
Apply
Remark
The setting indicates the number of broadcast packets which are allowed to enter a port in one time slot. The time slot is 50us for 1000Mbps, 500us for 100Mbps, and 5000us for 10Mbps.

Configuration	Description
Threshold	Broadcast storm protection is activated when the number of broadcast packets received on the port exceeds a threshold in a time slot. (Time slot: 50μs for 1000Mbps, 500μs for 100Mbps, 5000μs for 10Mbps) *1 ~ 63*
Enable Port	*v* - Select the ports to be configured

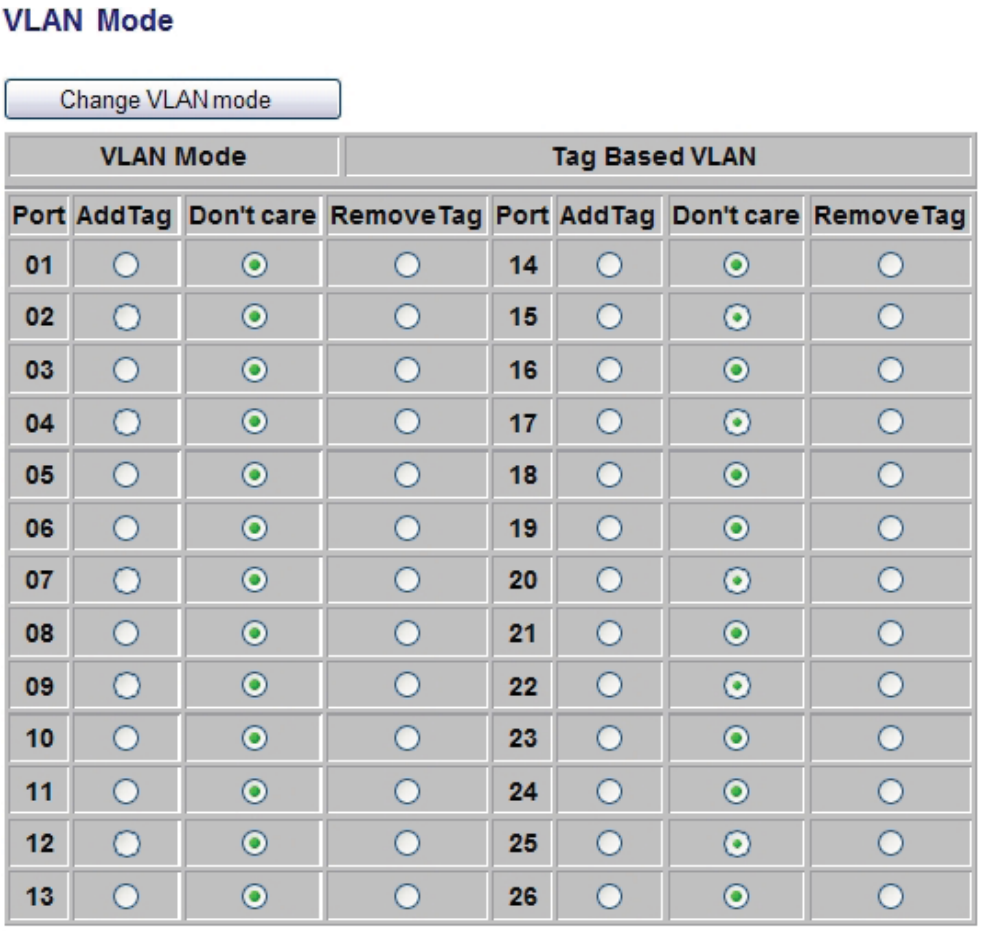
Remark:

As the function is enabled, the incoming broadcast packets are dropped when the number of received broadcast packets exceeds the threshold in the time slot.

4.11 VLAN Mode

Current VLAN mode: Port Based

Current VLAN mode: Tag Based



Note

Most of NIC cards do not support VLAN tag. It is strongly suggested to remove VLAN tag for egree ports connected to PC NIC cards.

Configuration	Description
[Change VLAN mode]	Click to change VLAN mode.
VLAN Mode	Current VLAN mode *Port Based VLAN* – port-based VLAN *Tag Based VLAN* – 802.1Q Tag based VLAN
Port	Egress port number
Add Tag	Click to enable port tagging function.
Don't care	Click to disable port tagging and un-tagging function.
Remove Tag	Click to enable port un-tagging function.
[Apply]	Click to apply the configuration change.

Remark:

1. *Port Tagging function enabled (Add Tag)*

Packet type received on the ingress port	***Packet output on the egress port with "Add Tag"***
Untagged packet	*Insert the PVID tag of the ingress port*
Priority-tagged packet (VID=0)	*Replace the tag with the PVID tag of the ingress port* *Priority field not changed*
Tagged packet	*No modification*

2. *Port Un-tagging function enabled (Remove Tag)*

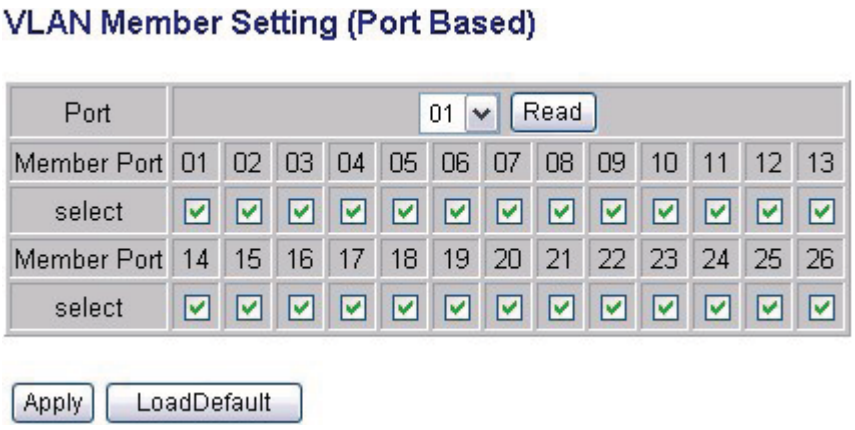
Packet type received on the ingress port	***Packet output on the egress port with "Add Tag"***
Untagged packet	*No modification*
Priority-tagged packet (VID=0)	*Priority-tag removed*
Tagged packet	*Tag removed*

3. *Warning Message displayed when changing Port-based VLAN mode to Tag-based VLAN mode*

4. Warning Message displayed when changing Tag-based VLAN mode to Port-based VLAN mode

WARNING !
All previous settings are reset to default values after changing to new VLAN mode.
Egress Tagging and Un-tagging settings will be reset to "Don't care" !
Are you sure to proceed ?
Yes
No

4.12 VLAN Member (Port-based)


VLAN Member Setting (Port Based)
Port
01
Read
Member Port 01 02 03 04 05 06 07 08 09 10 11 12 13
select
Member Port 14 15 16 17 18 19 20 21 22 23 24 25 26
select
Apply
LoadDefault

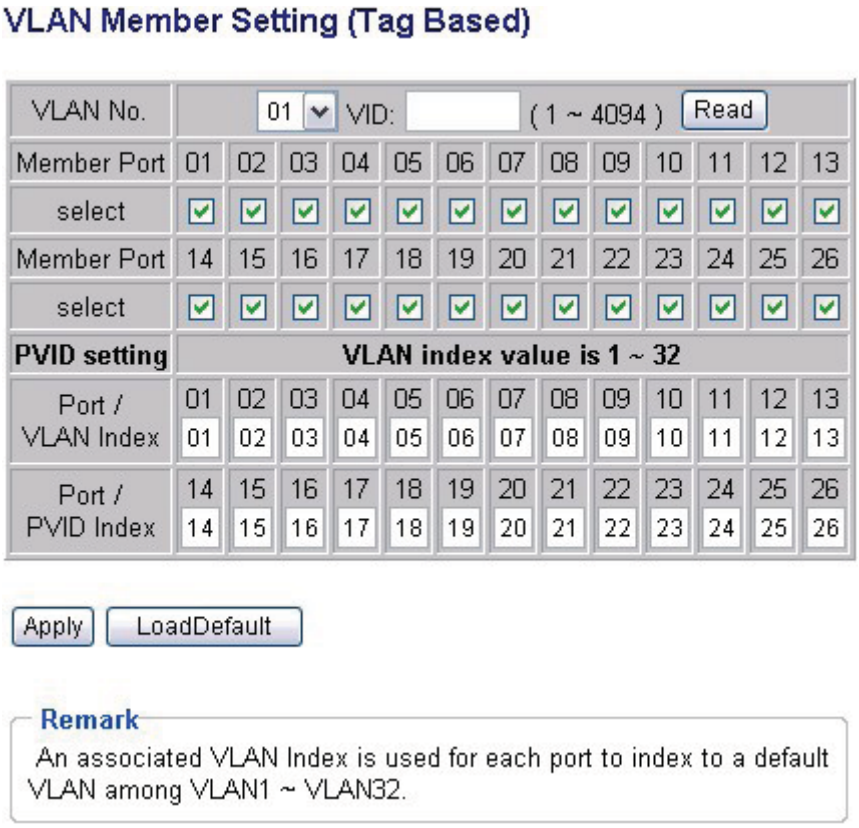
Configuration	Description
Port	Specify an ingress port for reading or configuring its allowed member ports
Member port	Select the allowed egress ports for the above specified ingress port
[Apply]	Click to apply the configuration change
[LoadDefault]	Click to use default setting values

Remark:

1. *In port-based VLAN mode, the packets received on one ingress port can only be forwarded to the ports among the allowed egress ports associated to the ingress port.*
2. *The default setting is that every port is allowed to forward packets to any ports.*
3. *The current setting for all ports is displayed as follows:*

VLAN Members																									
No.	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
2	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
3	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
6	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
7	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
8	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
9	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
10	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
11	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
12	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
13	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
14	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
15	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
16	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
17	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
18	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
19	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
20	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
21	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
22	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
23	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
24	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
25	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
NO.	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
VLAN Members																										

4.13 VLAN Member (Tag-based)


VLAN Member Setting (Tag Based)
VLAN No.
01
VID:
(1 ~ 4094)
Read
Member Port 01 02 03 04 05 06 07 08 09 10 11 12 13
select
Member Port 14 15 16 17 18 19 20 21 22 23 24 25 26
select
PVID setting
VLAN index value is 1 ~ 32
Port / VLAN Index
01 02 03 04 05 06 07 08 09 10 11 12 13
01 02 03 04 05 06 07 08 09 10 11 12 13
Port / PVID Index
14 15 16 17 18 19 20 21 22 23 24 25 26
14 15 16 17 18 19 20 21 22 23 24 25 26
Apply
LoadDefault
Remark
An associated VLAN Index is used for each port to index to a default VLAN among VLAN1 ~ VLAN32.

Configuration	Description
VLAN No.	Index of VLAN Group 1 ~ Group 32 *1 ~ 32 (N: VLAN Group N)*
VID	VLAN ID of the VLAN group *1 ~ 4094*
Member port	Select the member ports of the VLAN group
Default VLAN Index	Index to the default VLAN group associated to the port *1 ~ 32 (N: VLAN Group N)*
[Apply]	Click to apply the configuration change
[LoadDefault]	Click to use default setting values

Remark:

1. In Tag-based VLAN, a received packet is forwarded to egress ports based on the rules below:

Packet type received on an ingress port	***Forwarding Rule to a VLAN***
Untagged packet	*Use ingress port's default VLAN index pointing to the VLAN group to be used*
Priority-tagged packet (VID=0)	*Use ingress port's default VLAN index pointing to the VLAN group to be used*
Tagged packet	*Use the embedded VID in tag data of the packet to find a matched VLAN group within VLAN Group1 ~ Group32*

2. The default member ports and VID of all 32 VLAN groups are displayed as follows:

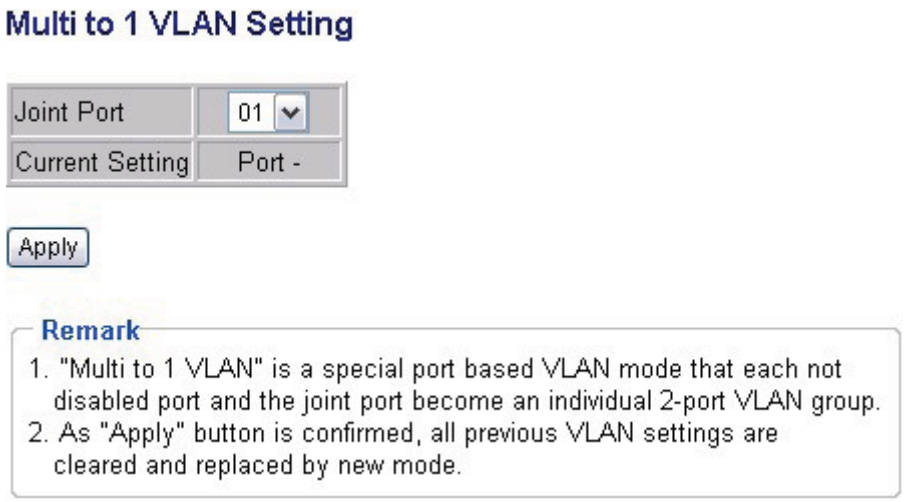
VLAN Members																									
No.	VID	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1	1	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
2	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
3	3	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
4	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
5	5	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
6	6	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
7	7	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
8	8	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
9	9	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
10	10	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
11	11	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
12	12	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
13	13	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
14	14	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
15	15	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
16	16	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
17	17	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
18	18	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
19	19	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
20	20	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
21	21	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
22	22	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
23	23	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v

24	24	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
25	25	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
26	26	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
27	27	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
28	28	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
29	29	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
30	30	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
31	31	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
32	32	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
NO.	VID	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
VLAN Members																											

Note:

For the Tag-based mode, the ingress port of a received packet must be the member port of the matched VLAN. Otherwise, the packet is dropped. If any VLAN uplink ports are set, the packet is forwarded to the unlink ports instead. Refer to Section "Miscellaneous-> VLAN Uplink" for more details.

4.14 Multi to 1 VLAN Setting


Multi to 1 VLAN Setting
Joint Port
01
Current Setting
Port -
Apply
Remark
1. "Multi to 1 VLAN" is a special port based VLAN mode that each not disabled port and the joint port become an individual 2-port VLAN group.
2. As "Apply" button is confirmed, all previous VLAN settings are cleared and replaced by new mode.

Configuration	Description
Joint port	Select a port as the joint port
[Apply]	Click to apply the configuration change
[LoadDefault]	Click to use default setting values

Remark:

1. *This mode is a special port-based VLAN application. Each of all ports combing the joint port becomes an individual 2-port VLAN group logically. The joint port is the common port for all groups.*
2. *Each of all ports except the joint port can only forward packets to the joint port.*
3. *The point port can forward packets to all ports except itself.*
4. *All ports can't talk to each other except the joint port.*

Note:

To click [Apply] will change VLAN mode to port-based VLAN and configure according settings. The previous egress rule settings are set to defaults.

4.15 Important Notes for VLAN Configuration

Some considerations should be checked in configuring VLAN settings:

1. **Switch VLAN Mode selection**

   It is suggested to evaluate your VLAN application first and plan your VLAN configuration carefully before applying it. Any incorrect setting might cause network problem.

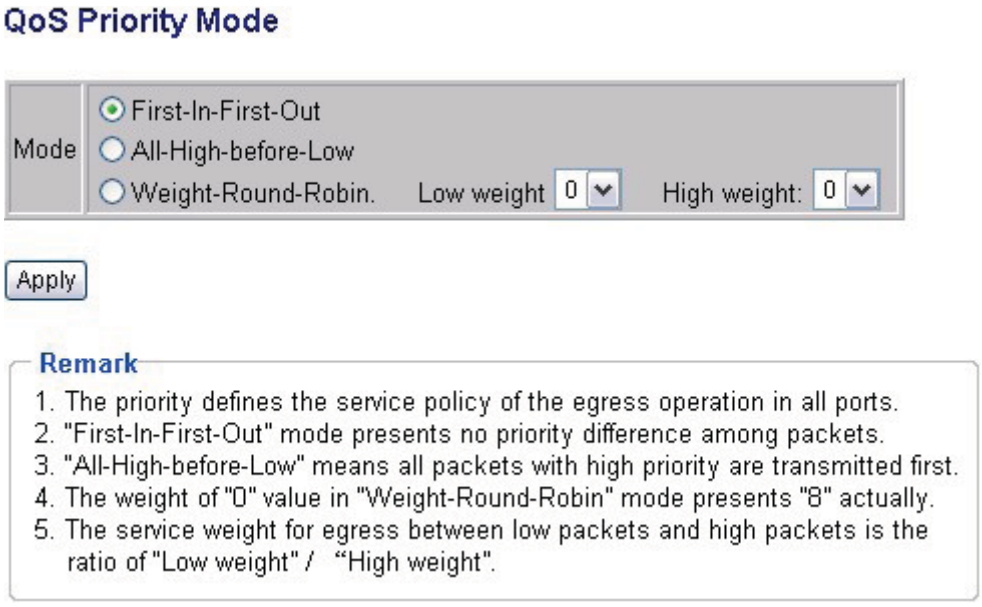
2. **Members of a Tagged-based VLAN Group**

   For Tag-based mode, the ingress port of a received packet must be the member port of the matched VLAN. Otherwise, the packet is dropped.

3. **Link Aggregation/Trunking configuration**

   Make sure all members of one link aggregation (trunk) group are configured with same VLAN configuration and are in same VLAN group.

4.16 QoS Priority Mode


QoS Priority Mode
Mode
First-In-First-Out
All-High-before-Low
Weight-Round-Robin.
Low weight 0
High weight: 0
Apply
Remark
1. The priority defines the service policy of the egress operation in all ports.
2. "First-In-First-Out" mode presents no priority difference among packets.
3. "All-High-before-Low" means all packets with high priority are transmitted first.
4. The weight of "0" value in "Weight-Round-Robin" mode presents "8" actually.
5. The service weight for egress between low packets and high packets is the ratio of "Low weight" / "High weight".

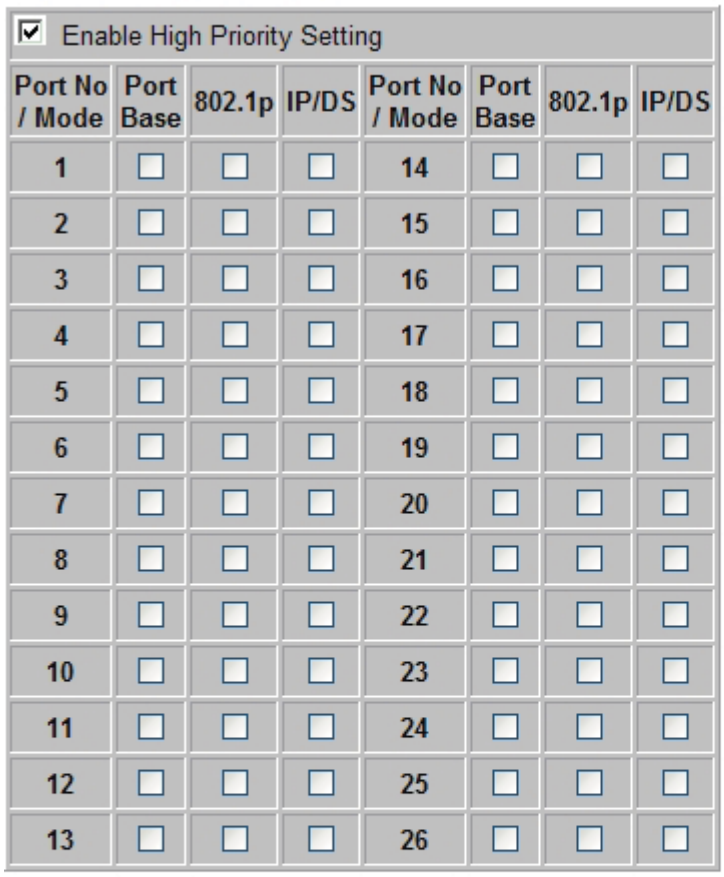
Configuration	Description
Mode	QoS service policy for egress operation on a port *First-In-First-Out* – egress by packet arrival time, no priority difference *All-High-before-Low* – all high priority packets transmitted first *Weight-Round-Robin* – egress based on [High / Low] weight ratio
Low weight	Weight of low priority in weight ratio *0 ~ 7* (weight 0 = weight 8)
High weight	Weight of high priority in weight ratio *0 ~ 7* (weight 0 = weight 8)
[Apply]	Click to apply the configuration change

Remark:

1. *The switch implements two levels of priority queues for port egress operation.*
2. *Each packet is classified as high priority or low priority based on CoS classification configuration.*
3. *Weight value 0 represents "8" actually.*

4.17 Priority Classification - Port, 802.1p, IP/DS Based

Port Base / 802.1p / IP-DS CoS Configuration



Configuration	Description
Enable High Priority	*v* – set to enable high priority classification
Port No.	Port number for QoS classification in ingress
Port Base	*v* – set to enable the port as high priority port All packets received by a high priority port are classified as high priority packets.
802.1p	*v* – set to enable 802.1p-based priority classification scheme 802.1Q tagged packet is examined the TCI (Tag Control Information, 16 bits) field of the 802.1Q tag data.

	The classification rule is: Bit[15:13] Priority field in TCI data 000 ~ 011: low priority 100 ~111: high priority
IP/DS	*v* – set to enable IP-based priority classification scheme IPv4 packet is examined the TOS (Type of Service, 6 bits) data and IPv6 packet is examined the Traffic Class (6 bits) data. The classification rule is: 101110, 001010, 010010, 011010, 100010, 11x000: high priority Others: Low priority
[Apply]	Click to apply the configuration change

Remark:

1. *Each incoming packet is classified as high or low priority based on classification configuration of the ingress port.*
2. *When multiple schemes are applied, a received packet is treated as the high priority as long as any one of the enabled schemes classifies it as high priority.*

4.18 Priority Classification – TCP/UDP Port Based

TCP/UDP Port CoS Configuration

Protocol	Classification	Protocol	Classification	Protocol	Classification
FTP(20,21)	F-I-F-O	NEWS(119)	F-I-F-O	QQ(4000,8000)	F-I-F-O
SSH(22)	F-I-F-O	SNTP(123)	F-I-F-O	ICQ(5190)	F-I-F-O
TELNET(23)	F-I-F-O	NetBIOS(137~139)	F-I-F-O	Yahoo(5050)	F-I-F-O
SMTP(25)	F-I-F-O	IMAP(143,220)	F-I-F-O	BOOTP_DHCP(67,68)	Low
DNS(53)	F-I-F-O	SNMP(161,162)	F-I-F-O	User_Define_a	F-I-F-O
TFTP(69)	F-I-F-O	HTTPS(443)	F-I-F-O	User_Define_b	F-I-F-O
HTTP(80,8080)	F-I-F-O	MSN(1863)	F-I-F-O	User_Define_c	F-I-F-O
POP3(110)	F-I-F-O	XRD_RDP(3389)	F-I-F-O	User_Define_d	F-I-F-O

TCP/UDP	User_Defined_a	User_Defined_b	User_Defined_c	User_Defined_d
Port Number (1 ~ 65535)	0	0	0	0
Mask (0 ~ 255)	0	0	0	0

Note

The mask defines which bit is ignored within the IP address bit 0 ~ bit 7.
For example, UDP/TCP port = 65535 and mask = 5,this means 65530, 65531, 65534 and 65535 are all taken into account.
UDP/TCP port =65535 and mask=0, this means only 65535 is taken into account.

TCP/UDP Port CoS function: Not Override

Apply

Remark

1. TCP/UDP CoS configuration is applied to all switched ports globally.
2. Classification options: F-I-F-O – First In First Out (Disabled)
   Discard – packets dropped
   Low – Low priority
   High – High priority
3. TCP/UDP Port CoS function "Override" option – Port Base/802.1p/IP-DS CoS configuration is ignored

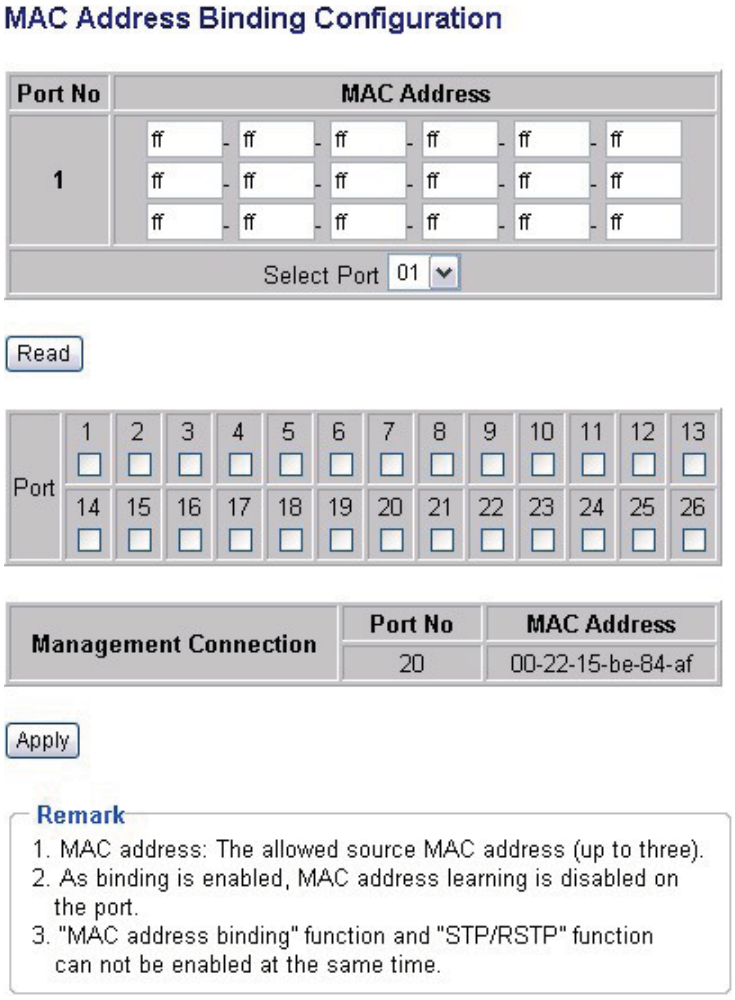
Configuration	Description
Protocol(#)	Well-known TCP/UDP-based protocol and the port numbers used
Classification	*F-I-F-O* – First-in-First-out, also means “disable”.
	Discard – The matched packet is dropped.
	Low – The matched packet is classified as low priority.

	High –The matched packet is classified as high priority.
User_Defined_x	User defined port number a, b, c, d
Port Number	Specify the port number base for User_Defined_x
	1 ~ 65535
Mask (0~255)	Used to mask the unchecked-bits of the port number base
	0 ~ 255
TCP/UDP Port CoS function	*Override* – Override other classification methods (port, 802.1p, IP/DS)
	Not override – Not override other classification methods (port, 802.1p, IP/DS)
[Apply]	Click to apply the configuration change

Remark:

1. *For TCP/UDP packets, configuration of classification based on TCP/UDP port number is a global setting and applied for all ports.*
2. *"Discard" option can be used to filter the associated TCP/UDP packets.*

4.19 MAC Address Binding


MAC Address Binding Configuration
Port No
MAC Address
1
ff - ff - ff - ff - ff - ff
ff - ff - ff - ff - ff - ff
ff - ff - ff - ff - ff - ff
Select Port 01
Read
Port
1 2 3 4 5 6 7 8 9 10 11 12 13
14 15 16 17 18 19 20 21 22 23 24 25 26
Management Connection
Port No
MAC Address
20
00-22-15-be-84-af
Apply
Remark
1. MAC address: The allowed source MAC address (up to three).
2. As binding is enabled, MAC address learning is disabled on the port.
3. "MAC address binding" function and "STP/RSTP" function can not be enabled at the same time.

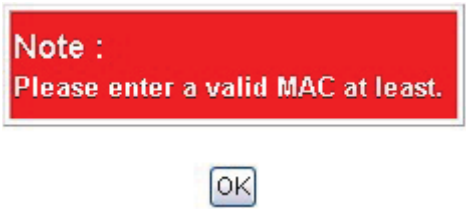
Configuration	Description
Port No.	The port for configuration
MAC Address	Up to three MAC addresses can be configured as the static MAC addresses associated to the select port. The static addresses are never aged out.
Select Port	Select a port to display its current static MAC address settings.
[Read]	Click to read and display current static MAC address settings of the selected port.
Port	*v* – select the ports to enable MAC address binding function (Static MAC addresses)

Status	Description
Management Connection	The current http connection to the switch device
Port No.	The port on which the management connection currently hooks
MAC Address	The MAC address of the connected management station

[Apply] Click to apply the configuration.

Note:

1. *As the MAC address binding function of a port is enabled, the MAC address auto-learning function of the port is disabled at the same time.*
2. *A setting of "ff-ff-ff-ff-ff-ff" means "not set". One valid MAC address at least must be set for the enabled port.*



3. *An enabled port can not be the member port of any link aggregation trunk.*
4. *Member ports of any link aggregation trunk can not be enabled for MAC address binding setting*

5. *For a port, the MAC Address Binding function and STP/RSTP function can not be enabled at the same time.*

4.20 TCP/UDP Filter

TCP/UDP Filter Configuration

Function Enable	Disable
Port Filtering Rule	Negative

Protocol				
FTP(20,21) ☐	SSH(22) ☐	TELNET(23) ☐	SMTP(25) ☐	DNS(53) ☐
TFTP(69) ☐	HTTP(80,8080) ☐	POP3(110) ☐	NEWS(119) ☐	SNTP(123) ☐
NetBIOS(137~139) ☐	IMAP(143,220) ☐	SNMP(161,162) ☐	HTTPS(443) ☐	XRD_RDP(3389) ☐
BOOTP_DHCP(67,68) ☐	User_Define_a ☐	User_Define_b ☐	User_Define_c ☐	User_Define_d ☐

Secure Egress Ports												
01 ☐	02 ☐	03 ☐	04 ☐	05 ☐	06 ☐	07 ☐	08 ☐	09 ☐	10 ☐	11 ☐	12 ☐	13 ☐
14 ☐	15 ☐	16 ☐	17 ☐	18 ☐	19 ☐	20 ☐	21 ☐	22 ☐	23 ☐	24 ☐	25 ☐	26 ☐

Apply

Note

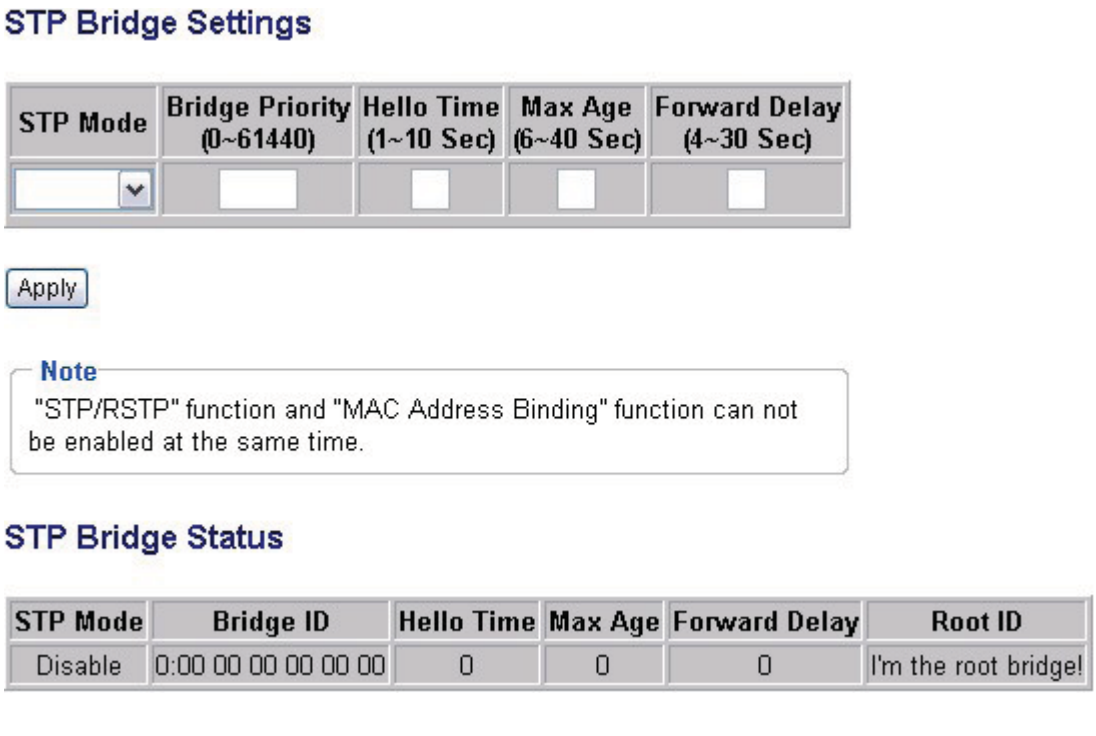
1. Port Filtering Rule options:
   "Negative" the packets with any of the configured protocols are dropped and not forwarded to the selected egress ports.
   "Positive" the packets with any of the configured protocols are allowed to forward to the selected egress ports.
2. The "User_Defined...." ports numbers are configured in TCP/UDP CoS configuration page.

Configuration	Description
Function Enable	*Enable* – enable TCP/UDP filter function *Disable* – disable TCP/UDP filter function
Port Filtering Rule	*Negative* – the matched packets (port number matched) are dropped *Positive* – only matched packets (port number matched) are forwarded to the enabled egress ports
Protocol	*v* – select the protocols (TCP/UDP port numbers) for applying filter function
User_Define_x	User defined TCP/UDP port numb a, b, c, d
Secure Egress Ports	*v* – select egress ports for filter function
[Apply]	Click to apply the configuration.

Note:

1. *As the MAC address binding function of a port is enabled, the MAC address auto-learning function of the port is disabled at the same time.*

4.21 STP Bridge Settings



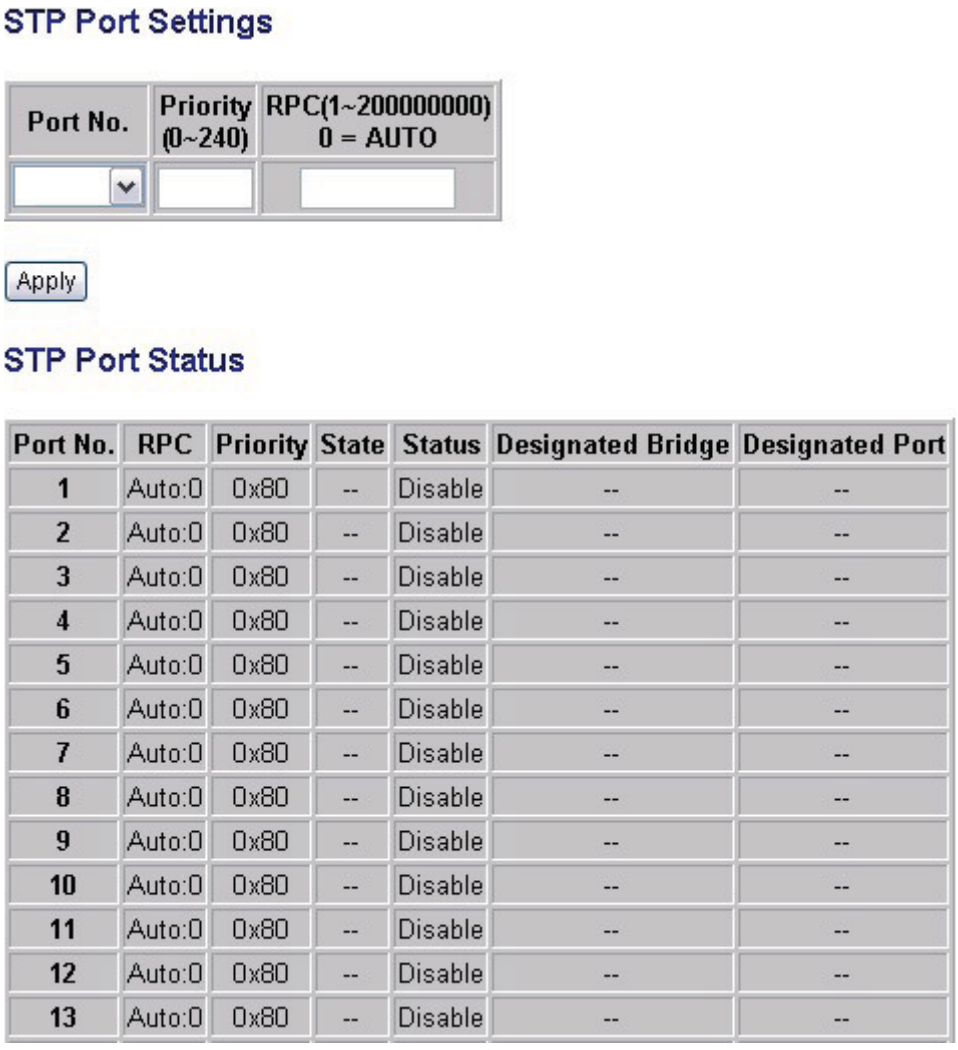
Configuration	Description
STP Mode	*Disable* – Disable STP or RSTP support *STP* – Enable Spanning Tree Protocol (IEEE802.1D) support *RSTP* – Enable Rapid Spanning Tree Protocol (IEEE 802.1w) support
Bridge Priority	The lower the bridge priority is the higher priority it has. Usually, the bridge with the highest bridge priority is the root. *0 ~ 61440*
Hello Time	Hello Time is used to determine the periodic time to send normal BPDU from designated ports among bridges. It decides how long a bridge should send this message to other bridge to tell I am alive. *1 ~ 10* seconds
Max Age	When the switch is root bridge, the whole LAN uses this setting as the maximum age time. *6 ~ 40* seconds
Forward Delay	This figure is set at Root Bridge only.
[Apply]	Click to apply the configuration.

Status	Description
Bridge ID	"Priority:MAC address" ID of current STP bridge
Hello Time	Current Hello Time
Max Age	The maximum age time
Forward Delay	This figure is set at Root Bridge only. The forward delay time is defined as the time spent from Listening state moved to Learning state and also from Learning state moved to Forwarding state of a port in bridge.
Root ID	The MAC address of current STP root If this switch is STP root, a message of "I'm the root bridge!" is displayed.

Note:

STP support and MAC Address Binding function are exclusive. Two functions can not be enabled at the same time..

4.22 STP Port Settings


STP Port Settings
Port No.
Priority (0~240)
RPC(1~200000000) 0 = AUTO
Apply
STP Port Status
Port No. RPC Priority State Status Designated Bridge Designated Port
1 Auto:0 0x80 -- Disable -- --
2 Auto:0 0x80 -- Disable -- --
3 Auto:0 0x80 -- Disable -- --
4 Auto:0 0x80 -- Disable -- --
5 Auto:0 0x80 -- Disable -- --
6 Auto:0 0x80 -- Disable -- --
7 Auto:0 0x80 -- Disable -- --
8 Auto:0 0x80 -- Disable -- --
9 Auto:0 0x80 -- Disable -- --
10 Auto:0 0x80 -- Disable -- --
11 Auto:0 0x80 -- Disable -- --
12 Auto:0 0x80 -- Disable -- --
13 Auto:0 0x80 -- Disable -- --

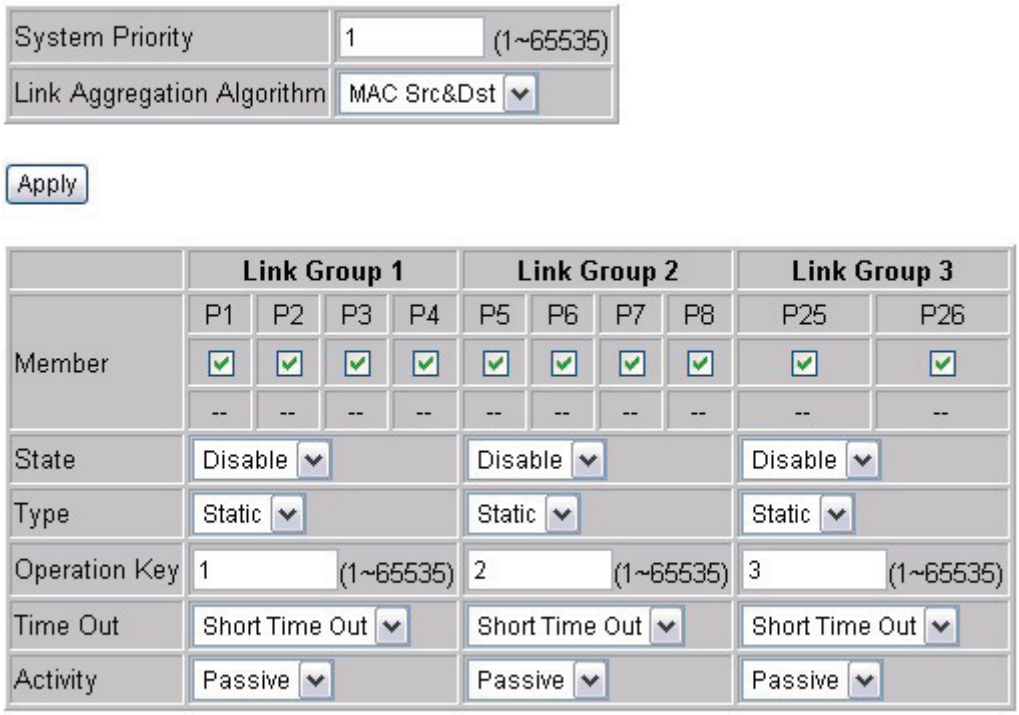
14	Auto:0	0x80	--	Disable	--	--
15	Auto:0	0x80	--	Disable	--	--
16	Auto:0	0x80	--	Disable	--	--
17	Auto:0	0x80	--	Disable	--	--
18	Auto:0	0x80	--	Disable	--	--
19	Auto:0	0x80	--	Disable	--	--
20	Auto:0	0x80	--	Disable	--	--
21	Auto:0	0x80	--	Disable	--	--
22	Auto:0	0x80	--	Disable	--	--
23	Auto:0	0x80	--	Disable	--	--
24	Auto:0	0x80	--	Disable	--	--
25	Auto:0	0x80	--	Disable	--	--
26	Auto:0	0x80	--	Disable	--	--

Configuration	**Description**
Port No.	Select a port number for configuration
Priority	Port priority *0 ~ 240*
RPC	Specifies the path cost of the port that switch uses to determine which port are the forwarding ports the lowest number is forwarding ports. *Value: 1 ~ 200,000,000* *0 = Auto* *Auto* means a default cost is automatically calculated in RSTP operation based on the port link speed. The default costs are: Link Speed Auto Default Cost *10Mbps 2000000* *100Mbps 200000* *1000Mbps 20000*
[Apply]	Click to apply the configuration.

Status	Description
Port No.	Port
RPC	Path cost of the p
Priority	Port priority
State	*Root Port* – A forwarding port that is the best port from Nonroot-bridge to Root bridge *Designated Port* – A forwarding port for every LAN segment *Alternate* – An alternate path to the root bridge. This path is different than using the root port. *Back Up* - A backup/redundant path to a segment where another bridge port already connects.
Status	*Forwarding* – A port receiving and sending data, normal operation. STP still monitors incoming BPDUs that would indicate it should return to the blocking state to prevent a loop. *Blocking* - A port that would cause a switching loop, no user data is sent or received but it may go into forwarding mode if the other links in use were to fail and the spanning tree algorithm determines the port may transition to the forwarding state. BPDU data is still received in blocking state. *Listening* - The switch processes BPDUs and awaits possible new information that would cause it to return to the blocking state. *Learning* - While the port does not yet forward frames (packets) it does learn source addresses from frames received and adds them to the filtering database (switching database)
Designated Bridge	ID of the STP gridge who designated the root port
Designated Port	Port number of the bridge from where the bridge designated the root port

4.23 Link Aggregation

Trunking



Configuration	Description
System Priority	Determines which switch in an LACP link controls port priorities
Link Aggregation Algorithm	*MAC Source* – use MAC SA as base to hash to a member port for packet forwarding
	MAC Src&Dst - use MAC SA & DA as base to hash to a member port for packet forwarding
[Apply]	Click to apply the configuration change
Member	Member ports of Link Group x (Trunks)
Link Group 1	Trunk group 1, valid member ports: *P1, P2, P3, P4*
Link Group 2	Trunk group 2, valid member ports: *P5, P6, P7, P8*
Link Group 3	Trunk group 3, valid member ports: *P25, P26*
State	*Disable* – The Link Group is disabled.
	Enable – The Link Group is enabled.
Type	Static – The type of link aggregation mechanism is static and proprietary.
	LACP – LACP-compliant mode (IEEE 802.3ad)
Operation Key	An integer value assigned to the port that determines which ports are

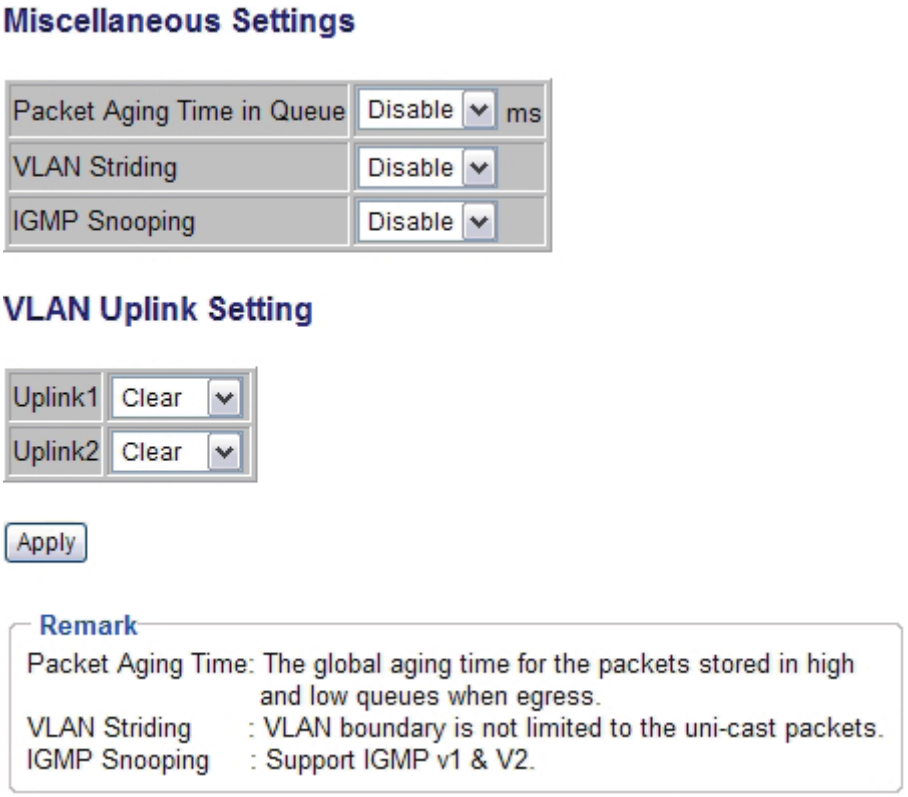
	aggregated into an LACP link aggregate.
	LACP operation key value: *1 ~ 65535*
Time Out	LACP option: *Long Time Out, Short Time Out*
Activity	LACP option: *Passive, Active*
[Refresh]	Click to refresh current configuration
[Apply]	Click to apply the configuration change

Link aggregation function allows making connection between two switches using more than one physical links. It can increase the connection bandwidth between two switches. The switch supports up to three trunk groups and the number of member ports belonging to one trunk group is limited and must be more than two.

Notes:

1. *All member ports of one trunk group must belong to same VLAN group and have same VLAN configuration settings. Otherwise, abnormal operation might be experienced.*
2. *An enabled port for MAC address binding is not allowed to be member port of any trunk group.*

4.24 Miscellaneous Settings



Configuration	Description
Packet Aging Time in Queues	Option: *Disable, 200ms, 400ms, 600ms, 800ms*
VLAN Striding	Option: *Disable, Enable*
IGMP Snooping	Option: *Disable, Enable*
Uplink1	VLAN uplink 1, options: *Clear, Port 1, Port 2, ..., Port 26*
Uplink2	VLAN uplink 2, Option: *Clear, Port 1, Port 2, ..., Port 26*
[Apply]	Click to apply the configuration change

Remark:

1. *A packet is dropped if the time it stays in output queue is more than the configured Aging time. "Disable" setting forces a packet never aged out.*
2. ***VLAN Striding***

   In normal case, a uni-cast packet is not allowed to be forwarded to a port not in a VLAN member port list and the uni-cast is dropped. "Enable" VLAN Striding allows the uni-cast packet to be forwarded cross a VLAN. That means uni-cast packets are forwarded as no VLAN limitation.
3. ***IGMP Snooping***

   When this function is enabled, the switch will monitor multicast router ports and maintain IP multicast group information. The switch also listens on IGMP messages to maintain the associated member ports of each multicast group. Multicast packets are forwarded only to the group's member ports. The ports not in the member list are not affected by the multicast traffic.
4. ***VLAN Uplink Ports***

   With VLAN uplink enabled, a packet which is filtered in a VLAN is forwarded to VLAN uplink ports instead. The VLAN uplink port must be a member of the same VLAN. Two VLAN uplink ports can be designated, one port in one VLAN. "Clear" option is to disable uplink forwarding.

4.25 Port Counter

Counter Category

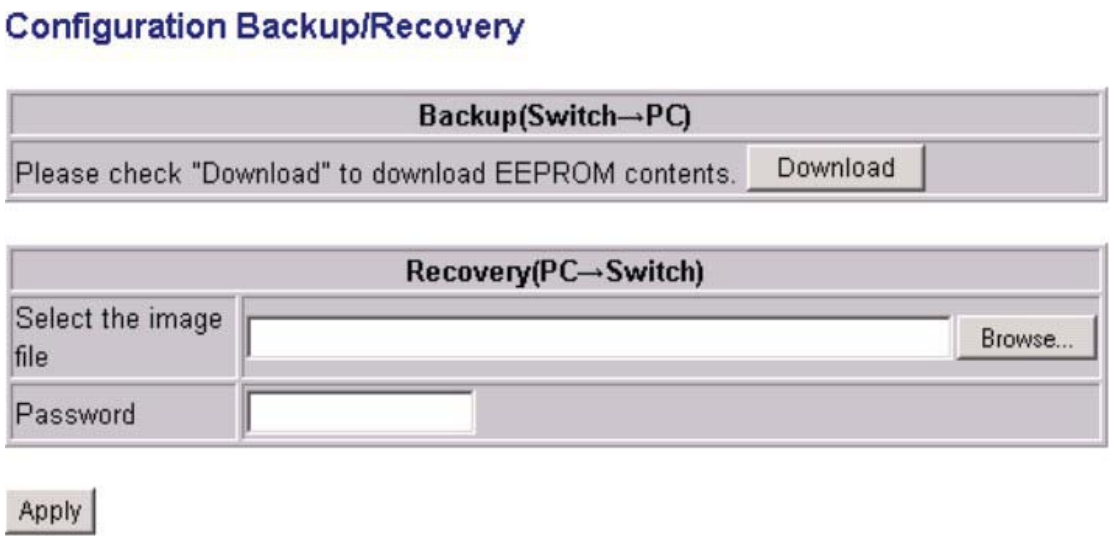
Counter Mode Selection: Transmit Packet & Receive Packet [Apply]

Port	Transmit Packet	Receive Packet
01	0	0
02	0	0
03	0	0
04	0	0
05	0	0
06	0	0
07	0	0
08	0	0
09	0	0
10	0	0
11	131478	3607
12	0	0
13	0	0

14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	0	0
20	10739	2459908
21	0	0
22	0	0
23	2433766	5372
24	0	0
25	0	0
26	0	0

Selection	**Description**
Counter Mode Selection	Select a counter to display. Available counters are: *Transmit Packet & Receive Packet* *Collision count & Transmit Packet* *Dropped Packet and Receive Packet* *CRC Error Packet and Receive Packet*
[Apply]	Click to confirm the selection.
Port	Port no. of the statistic data
2 Counters	Two selected statistic data of a port
[Clear]	Click to reset the statistic counters
[Refresh]	Click to refresh the statistic counters

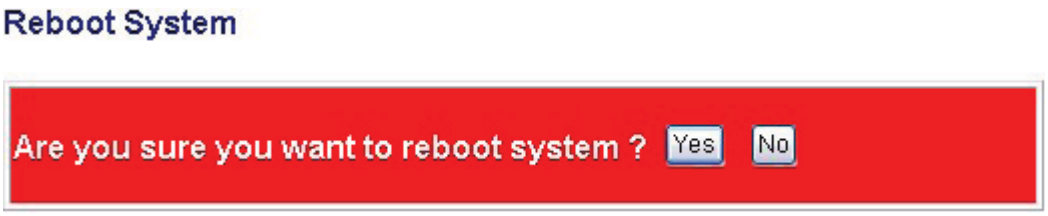
4.26 Backup/Recovery



This menu is used to store (backup) the all of current switch configuration to a computer. The Recovery is used to use a backup configuration stored in a computer for the switch.

Configuration	Description
[Download]	Click to store the configuration to a PC.
Select image file	Specify a backup configuration file for upload to the switch.
Password	Authentication for Recovery operation
[Browse]	Click to browse your computer file system for the image file
[Apply]	Click to start upload

4.27 Reboot System



This menu is used to reboot the switch unit remotely with current configuration. Starting this menu will make your current http connection lost. You must rebuild the connection to perform any management operation to the unit.

4.28 Restore Default

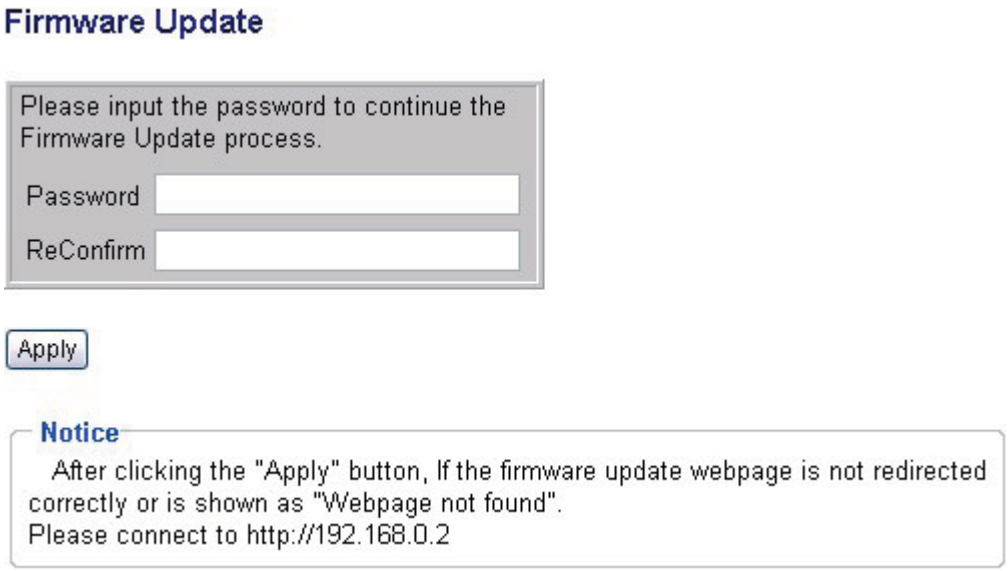
Are you sure you want to restore factory default? Yes No
(Restore switch default setting excluding the IP address and Password)

This menu is used to restore all settings of the switch unit with factory default values.

Note:

Current IP address settings and Password will be kept and will not be restored to factory defaults.

4.29 Update Firmware


Firmware Update
Please input the password to continue the Firmware Update process.
Password
ReConfirm
Apply
Notice
After clicking the "Apply" button, If the firmware update webpage is not redirected correctly or is shown as "Webpage not found".
Please connect to http://192.168.0.2

This menu is used to update the embedded software of the switch. Firmware update may be required due to bug fix or function enhancement.

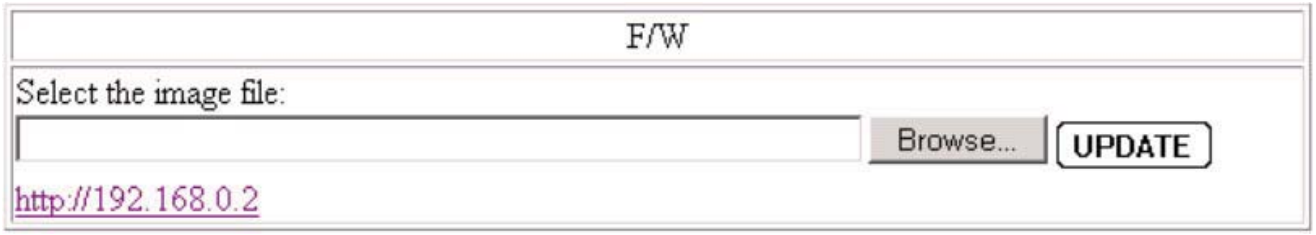
Configuration	Description
Password	Authentication for operation
ReConfirm	Re-confirm the password input
[Apply]	Click to start upload

After clicking [Apply], a warning window prompts. The flash code will be erased and all functions are deleted before a new firmware is uploaded.

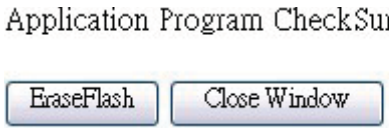
As confirmed, the existing firmware is erased and a message is displayed as follows:

Erase Flash (0/256)
If this webpage doesn't refresh smoothly, please connect to http://192.168.0.2 to continue.

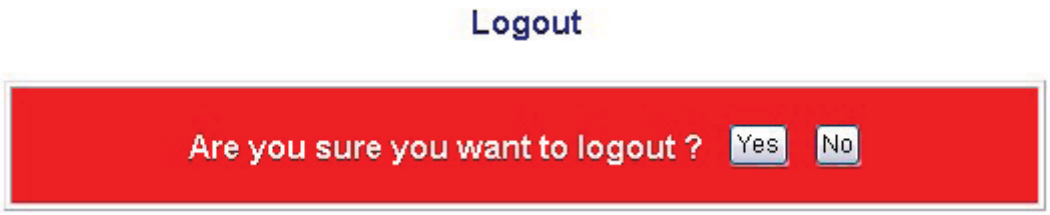
Specify the new firmware and proceed to upload new firmware.



If the uploading of new firmware is interrupted unexpectedly and can not be finished properly, connect to http://192.168.0.2 to restart the uploading procedure. A prompt is displayed as follows:



4.30 Logout



If no user action in around 5 minutes, a notice is displayed as follows:

Notice
Around 5 minutes without any actions on this system, for security issue, this system will be logout in 10 minutes and without any notices.
Click Back,other items or re-login(if timeout) to continue your works.
Back

If no user action around 10 minutes after the notice, the web connection is logout automatically without notice.

Appendix. Factory Default Settings

System Configuration

Password	123
Confirm Password	123
Name	SWITCH2621
Contact	Null
Location	Null
IP Address	192.168.0.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1
IP Configuration Mode	Static

Port Configuration

Auto-Negotiation	Auto for all ports
Speed	Port 1 ~ Port 24 100M
	Port25 ~ Port 26 1000M
Duplex	Full for all ports
Pause	ON for all ports
Backpressure	ON for all ports
Addr. Learning	ON for all ports

Port Mirroring

Monitored Packets	Disable for all ports

Bandwidth Control

Tx Rate	Full Speed for all ports
Rx Rate	Full Speed for all ports
Speed Base	Low

Broadcast Storm Control

Threshold	63
Enable Port	Disable for all ports

VLAN Mode

VLAN Mode	Port Based VLAN
Tag Based VLAN	
Tagging	“Don't care” tagging for all ports

VLAN Member Setting

Port Based VLAN

Members of each port	All ports

Tag Based VLAN

VID	1 ~ 32 for 32 VLANs individually
Member ports	All ports
VLAN index	1 ~ 32 for 32 VLANs individually

Multi to 1 VLAN Setting

Joint Port	Null

QoS Priority Mode

Mode	First-In-First-Out
Low weight	0
High weight	0

Port Base / 802.1p / IP-DS CoS Configuration

High Priority Setting	Enable
Port Base	Disable for all ports
802.1p	Disable for all ports
IP/DS	Disable for all ports

TCP/UDP Port CoS Configuration

BOOTP_DHCP(67,68)	Low
All others protocol	F-I-F-O

MAC Address Binding Configuration

MAC Address binding	Disable for all ports

TCP/UDP Filter Configuration

Function Enable	Disable
Port Filtering Rule	Negative
All protocol	Disable
Secure Egress Ports	Disable for all ports

STP Bridge Settings

STP Mode	Disable
Bridge Priority	32768
Hello Time	2
Max Age	20
Forward Delay	15

STP Port Settings

Port No.	Null
Priority	Null
RPC	Null

Trunking

System Priority	1
Link Aggregation Algorithm	MAC Src&Dst
Link Group 1	
Member	Enable for all ports
State	Static
Operation Key	1
Time Out	Show Time Out
Activity	Passive
Link Group 2	
Member	Enable for all ports
State	Static
Operation Key	2
Time Out	Show Time Out
Activity	Passive
Link Group 3	
Member	Enable for all ports
State	Static
Operation Key	3
Time Out	Show Time Out
Activity	Passive

Miscellaneous Settings

Packet Aging Time in Queue	Disable
VLAN Striding	Disable
IGMP Snooping	Disable

VLAN Uplink Setting

Uplink1	Clear
Uplink2	Clear